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THE FATHER OF AMERICAN PHARMACY.¹

WILLIAM PROCTER, JR.; BORN, BALTIMORE, MD., MAY 3, 1817; DIED,
PHILADELPHIA, PA., FEBRUARY 9, 1874.

BY ALBERT E. EBERT, PH.M.

To compose a eulogy of the life and work of Professor Procter is a pleasure to which an old-time pharmacist should bring his best thought. But this has already been done by abler minds than mine. It may not, however, be a work of supererogation to add another tribute to his memory as a teacher, a writer and as the founder and leading spirit of the American Pharmaceutical Association. With but a limited education, yet by hard and unremitting labor and study he placed himself in the front rank of American scholars. He built his life, line upon line, by his own unaided efforts. He was a self-made man in the best sense, for his own early struggles had taught him to put himself in another's place, and to give the help he in former years would have been glad to receive. From the day of his graduation from the Philadelphia College of Pharmacy in 1837 his life seemed to be devoted wholly to the interests of the profession. In 1840 he became a member of the college from which he graduated, and from that time to the end of his life he was one of its most distinguished sons. When he became a professor in the college he founded the course in the theory and practice of pharmacy, which, prior to its introduction by him, had not been practically applied. His contributions to the literature of pharmacy

¹ Read at the Special Jubilee Session of the American Pharmaceutical Association, September 11, 1902.

have been greater than those of any other American; for more than a score of years he was editor of the *AMERICAN JOURNAL OF PHARMACY*, and the breadth of his researches and the conscientious accuracy with which he discharged the duties of that position are attested by the volumes of the *JOURNAL* which appeared during the years of his incumbency. Professor Procter was extremely conscientious in his giving credit to every writer and investigator who had contributed to the advancement of pharmacy. As editor he scrutinized with care every paper submitted, and his wide knowledge of everything pertaining to the profession enabled him to prevent errors and to give to every man exact credit for whatever originality he might possess. He never gave willingly to one man credit for work that belonged to another, nor did he allow any investigator to claim the work of another man as original with himself.

Professor Procter was a member of the Society of Friends. He was a man of unusually pure mind and character. He had the rare faculty of being able to concentrate his mind amid the pressure of a multitude of distracting circumstances, and in this way he was able to accomplish wonderful results. He was ever genial, even of temper and unruffled by any of the cares of his college or professional life. He was a man of truly rare and excellent heart, with a mind so great and so richly endowed with learning that such another has not yet been born to fill his place.

The American Pharmaceutical Association was the offspring of Professor Procter's able and versatile mind. Throughout the years of his life which followed the organization of that body, he gave to it the richest treasures of an intellect fitted beyond all others for the work which he had undertaken.

It was in October, 1851, that Professor Procter, with Charles Ellis and Alfred B. Taylor, went as delegates to a meeting in New York called by the New York College of Pharmacy to consider a law relating to the inspection of drugs at the Custom House. At this gathering was born the idea of a national association, and Professor Procter was the first to grasp the true scope and utility of the idea. From this time until the time of his death, by voice and pen he contributed to the strength of the association.

His contributions to the annual proceedings of the association covered a wide and varied range of topics and were enriched by his large researches and by the versatility of his mind, which was to an

eminent degree that of the logician and the original investigator. His English style was pure, free from pedantry, and showed a rare simplicity and directness. His love and enthusiasm for the work of the association were among his most distinguishing characteristics. It is a great pleasure for me to remember him when I, as a student, knew him in his modest store in Philadelphia and during those rare days in Europe, when I had the pleasure of being his traveling companion for some months. I remember that it was Professor Procter's desire to attend a meeting of the British Pharmaceutical Conference, and at the time we were in Germany such a meeting was about to be held in Dundee, Scotland. The time of the meeting was almost coincident with that of the American Pharmaceutical Association, and, notwithstanding his strong desire to be present at the meeting of the British pharmacists, he nevertheless felt it his duty to return home and be present at the meeting of the American body. He requested me, however, to go on to Scotland and be present at the meeting of the British pharmacists. At the Dundee meeting the greatest regrets were expressed at the absence of Professor Procter, for among the British pharmacists his contributions were especially well known and his British friends looked forward with solicitude to a more personal and intimate acquaintance.

During our attendance at the International Pharmaceutical Congress in Paris, in 1867, Professor Procter was chairman of the United States delegation, and was made one of the vice-presidents of the congress. He was here the recipient of marked attentions from all of the most distinguished delegates, among whom his work and abilities were well known. The reception he received from such men as Anton von Waldheim, of Vienna; Dr. F. A. Flueckiger, of Switzerland; Dr. Cassellmann, of St. Petersburg; Dr. Dittrich, at Prague, and Professors Liebig, Wittstein and Buechner, at Munich, was most flattering.

The pharmacists of America ought not to let the memory of their most distinguished colleague fall into oblivion. They should keep the memory of William Procter, Jr., green in their hearts and should give him a monument more lasting than stone or bronze—a monument built in their affections and in the affections of those who come after them. Let us remember that the favorite child of his genius was the American Pharmaceutical Association. It was here that his work became as broad as his country.

As a teacher Professor Procter came in contact with a limited number of students; as editor of the *AMERICAN JOURNAL OF PHARMACY* his field, of course, was wider; but it was through his connection with the American Pharmaceutical Association that the scope of his labors became truly national in its character. This association owes to him more than to any other man. Could we ask him what, if anything, he would have us do as a memorial to him, he would undoubtedly answer that it would please him most for us to devise a way to perpetuate the life of the American Pharmaceutical Association. That, done in honor of his memory, would surely gratify him more than anything else we could do. We shall, no doubt, listen to a proposition for perpetuating the American Pharmaceutical Association in the name of William Procter, Jr., at this semi-centennial meeting. Whatever we can do in aid of a cause so worthy must be well done. For itself and in honor of the memory of its most distinguished founder, William Procter, Jr., the American Pharmaceutical Association deserves and must receive the most earnest, the most sincere and most affectionate thought of us all.

THE ADVANCES MADE IN PHARMACEUTICAL MANUFACTURES DURING THE PAST FIFTY YEARS.¹

BY WILLIAM JAY SCHIEFFELIN.

In their scale of operations, in the use of machinery, and in the variety of their products, pharmaceutical manufactures have developed more during the past fifty years than through all the preceding centuries.

In 1852, when the medical world was emerging from the Jalap and Calomel age, the pharmacist made his own galenicals, pills and elixirs, and bought the crude drugs. Most of the manufactured products purchased by him came under the class of heavy chemicals and were of mineral origin. Besides the common acids, alkalies, alum and sulphur, the list included the mercurials, lunar caustic, arsenic and powder of Algaroth, sugar of lead, sulphate of zinc, magnesia, bromide and iodide of potash and Labarraque's solution.

¹ Read at the Special Jubilee Session of the American Pharmaceutical Association, September 11, 1902.

Alkaloids and organic compounds were few and were used in very limited quantity. Morphine and quinine, chloroform, alcohol, ether and collodion, besides acetic, tartaric and oxalic acids, were the chief ones.

But in 1852 the opening of the Hudson River and Erie Railroads, followed by the Pennsylvania Railroad in 1854, made it possible for the druggist to get his preparations more quickly than he could make them, and at no greater cost; while the consolidation of fifty different telegraph companies, which began in 1851, enabled him to send his orders instantaneously.

The Civil War, with its demands for medical supplies, stimulated the manufacturers; the need of large quantities of pure extracts led Dr. Squibb to establish his laboratory, and the abilities of that great man were devoted to perfecting the processes of pharmaceutical manufactures.

His many researches and improvements, freely published in the *Ephemeris*, take the lead in importance and value, and he must be counted among the benefactors of humanity.

His process of preparing fluid extracts by cold repercolation may be put at the head, and his suggestions on the valuation of drugs and the assay of opium, on the manufacture of ether, acetone and cocaine, and of acetic extracts, should not be forgotten.

Among those who have passed away and who should be remembered with honor and gratitude for their services to scientific pharmacy in America, are Procter, Maisch and Rice. These men made the United States Pharmacopœia the most perfect book of its kind in the world.

The Pharmacopœia, with its formulæ constructed on a scale intended for the convenience of the retailer, became nevertheless a guide to the manufacturer, and the retailer found it advantageous to buy his standard pharmaceuticals ready made. The reasons for this are truer to-day than they were then; they are as follows:

- (1) The retail pharmacist cannot devote the time to manufacturing.

- (2) Making fluid extracts in small quantities is uneconomical because of the loss of the alcohol which is recovered in a large way; the cost of labor, which would be about the same for one litre as for 200 litres; and the forming of a deposit in many extracts which would never have time to clarify if used at once for dispensing;

then the standardization of alkaloidal extracts would greatly increase the cost of one litre, but not of 200.

(3) It is very evident that 1,000,000 pills or tablets can be more cheaply made than 100, and it is extremely convenient to have pills and tablets of a given formula all of one size with the materials evenly distributed. The retailer demands and receives liquid preparations which remain clear and emulsions that do not separate; it may be doubted if this would always be the case if he made them himself. Therefore the large manufacturing plants of to-day have developed. Fifty years ago the manufacturers supplied small quantities of morphine, chloroform, ether, galenical extracts, elixirs, opodeldoc, mercurial and other salts. Ten years later the list of fluid extracts had greatly increased; while in 1870 extracts with glycerin were in favor. Then the coated pills were introduced and the business increased to very large proportions until the cheaper tablets and triturates partially replaced them.

In 1857 a paper was read before the American Pharmaceutical Association mentioning gelatine capsules, sugar-coated pills, cod-liver oil emulsion, and the effervescing salts which Mr. Maisch had described the year before: it is remarkable that so many years passed before all these came into general use. The soft gelatine capsule is one of the greatest improvements in administering drugs that has been made.

In 1885 the synthetic remedies were introduced from Germany. Antipyrine was soon followed by acetanilid, phenacetine, sulfonal and many others. Our schools of science awoke to the value of research work when the learned and patient Germans produced these preparations.

The English and French chemists had supplied scarcely any synthetic remedies, and so the backwardness of the Americans would not have excited much comment, were it not that certain persons put on the market mixtures containing chiefly acetanilid, proclaiming them as new chemical compounds, great American discoveries, and which were the cause of much disparagement and ridicule of American methods of synthesis.

Nearly all of these imitation synthetics have disappeared, and it is a reproach to us that any have survived—for there can be no denying that to launch a product by a misrepresentation is disreputable. In every succeeding year new remedies, genuine synthetics, have

appeared. Among those which have survived and are in considerable demand to-day may be mentioned acetanilid, antipyrine, aristol, chloralamid, creosotal, formaldehyde, heroin, phenacetine, phenocoll, salophen, salol, sulfonal, thiocoll and urotropin.

Besides the older organic compounds: chloral, chloroform, carbolic acid, ether, ethyl nitrite, iodoform, naphthaline and salicylic acid.

Ethyl nitrite is made in several American laboratories and its consumption here approaches 40,000 pounds a year. The makers of essential oils also manufacture synthetic perfumes and flavorings, such as vanillin, coumarin, saccharine, ionone and heliotropine, oil of sassafras and oil of wintergreen.

In these processes the organic solvents are largely used—alcohol, ether, naphtha, chloroform, acetone, etc. The German maker, with cheap alcohol, has an immense advantage over the American, and if the tax were removed from alcohol used in the arts, our progress would be unimpeded.

Electrochemistry has but slightly affected pharmaceutical manufacturing. Iodoform, vanillin, carbon disulphide and hypochlorites are beginning to be manufactured with the aid of the electric current.

The making of infants' and invalids' foods is a branch by itself and digestive ferments are prepared in liquids and solids in efficient and attractive form.

Manufacturing on a large scale requires apparatus in proportion, so the beakers and glass jars are replaced by earthenware pots, enamelled iron tanks of 120 to 350 gallons capacity, block tin tanks of 500 gallons, and chemical lead tanks of 2,000 gallons. The liquids are transferred by centrifugal pumps, by steam syphons, or compressed air, and precipitates though as heavy as sand can also be pumped because these pumps are similar to the large ones used in marine dredging, of which it is reported that recently one pumped up an anchor weighing 80 pounds without injury or interruption.

The drug mills are of every kind. For fine powdering the chaser is most used, then the ball or pebble mills. Grist mills with burrstones are still much used and steel rolls; while high-speed pulverizers, rotary cutters and crushers take the leaves and roots.

While in pharmaceutical machinery the Americans are far in the lead, the German apparatus for work in organic chemistry is pre-

eminent. Think of an autoclave, lined with acid-resisting material, having a capacity of 500 litres, with stirring paddles working under a pressure of sixty atmospheres.

Ingenious machines are now very generally used in American pharmaceutical laboratories. The modern pill machines are marvellous, especially the final one, holding the pills by suction as they are dipped in the coating, which enables one girl to coat 100,000 pills in a day, etc.; and tablet machines are now in use which stamp twelve tablets at a stroke and make 500,000 in a day. One young girl attends two machines, and thus makes 1,000,000 tablets in a day.

Perhaps the two greatest aids to manufacturing pharmacy are vacuum distillation and centrifugal extraction. The former has long been in use, but the latter has only come into general use in this country during the past fifteen years.

The immense filtering racks and presses that formerly encumbered a laboratory are now usually replaced by centrifugal machines which take up but little room and save much time, while the quantity of wash liquor is so reduced that the loss by washing is unimportant. The cheapness of certain leading products is due almost entirely to these machines—aloin is an example, as it must be well but quickly washed or it is decomposed.

Fifty years ago the medical world was much interested in glycerin as a remedy for the skin, as a solvent for drugs and as a vehicle for administering them. The use of it has grown to vast proportions, and the service done by Chevreul should always be acknowledged. I had the privilege of visiting him in Paris, when he was 100 years old, and of expressing the gratitude and admiration felt in America for his discoveries. He replied with a bright smile that he had always admired Americans and regretted that he had never been able to visit us.

Glycerin, ox gall and vaccine were almost the sole animal products then on the druggist's list, but pepsin soon followed and pancreatine, while during the past ten years the laboratories have annexed the barnyards, and the serums and toxins and extracts from glands have become of great importance. These biological departments are under the direction of scientists trained in bacteriology, which demands niceties of cleanliness and carefulness of sterilization that would be a revelation to the apothecary of fifty years ago.

The makers of plasters and surgical dressings also have splendid vacuum appliances of great size for sterilization.

Extract of malt is made tons at a time in low pressure vacuum pans, while diastase is prepared in a wonderfully active state.

By-products of the huge packing houses are extract of beef, pepsin and pancreatin, and stearin; while the creameries make sugar of milk and caseine.

Returning to our laboratories, the most important galenicals they make besides the extracts are aloin, santalin, resin scammony and resin podophyllum. Then there are a variety of emulsions, elixirs, syrups, and medicinal wines.

The large pharmaceutical laboratories have been laudibly enterprising in their search for drugs and have introduced some of great value—cascara, for instance.

The demand for the chief alkaloids has steadily increased until the production of quinine and morphine has become enormous. The estimated annual consumption of quinine in the United States is five million ounces, and that of morphine is four hundred thousand ounces.

The manufacture of strychnine, caffeine, and cocaine has developed so greatly that it seems at the present time to be ahead of the consumption, large though it be.

Fifteen years ago cocaine sold by the grain and now its annual consumption in this country approximates one hundred thousand ounces.

Most of the mineral acids and salts sold by the druggists are heavy chemicals and are now made by the combination. Rochelle salt, cream of tartar, magnesia, borax and chlorate of potash have long since outgrown the pharmaceutical laboratories; but these still make the salts of bismuth and certain salts of iron and manganese and of mercury besides iodides and bromides and phosphates and peroxide of hydrogen, while latterly several have undertaken the manufacture of lithia from its minerals, lepidolite from California and spodumene from Dakota, with the result that the price has fallen in two years from \$3.30 to \$1.30 a pound; because the capacity of the plants is perhaps double the consumption, which is about sixty thousand pounds a year.

So the pharmaceutical chemist, like the alchemist of old, finds his material in rare and beautiful minerals, in the cells of outlandish

plants and in the blood of live animals, but his processes are lighted by the lamp of science, and instead of working with a few ounces he operates with quantities of thousands of pounds. The future of pharmaceutical manufactures is bright, for the standards are right, which is largely due to the men of this Association and their like.

STATUS AND LANDMARKS OF AMERICAN PHARMACY AND THE DEVELOPMENT OF PHARMACY DURING FIFTY YEARS.¹

BY J. L. LEMBERGER, Ph.M.

Reminiscences call up things, events and persons of yesterday, the recalling of which will serve my purpose in responding to the duty assigned me as a help to the proper celebration of this fiftieth anniversary.

Our early recollection of this Association, as a young man, comes to us with feelings akin to an inspiration. I remember the impression made upon me that I was about to become associated with a great body; and when I gazed upon what was then the personnel of the American Pharmaceutical Association, I soon discovered, on coming into closer fellowship, that it was a privilege for a young man to meet and associate with the men that composed that body—men that made American pharmacy what it then was and moulded influences which have continued to develop and perpetuate the art as we find it to-day; men who with prophetic vision at their initial meeting seemed to foresee the great necessity of safeguarding the nation against the admission of drugs of only full standard purity, who in this act recognized that quality and not quantity for value was the safe method, and that integrity and skill, if rightly applied, would commend their acts and would win to their confidence and fellowship the colleges of medicine and pharmacy, and the most able druggists and chemists of the land;—these men were inspired by no selfish, but rather the higher philanthropic motives. The men of that association were they who in their day made and revised our pharmacopœias and constructed our formu-

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laries, made and contributed to our useful dispensaries, chemistries and treatises on pharmacy, making the high professional standard, bequeathing it as a legacy for those who take their places to-day. Delightful indeed is this duty to recall the pioneer service performed by that patient industrious body who builded so wisely and made possible our partnership and succession to the inheritance manifest in this interesting assemblage.

Do we inquire who were these noble men? Glance over the pages of our own history, or gaze upon the walls of this assembly hall and see some of the worthies looking upon us in mute picture and perhaps in spirit communion.

Education marks every stage of progress in the advancement of all science, and it will not seem strange, therefore, that early in the history of this Association the wisdom of the pioneers was directed towards a higher education, proper instruction and careful moulding of the learners or the apprentices. Many young men of that day became apprentices to the drug business only by the English custom, the process of legal indenture, and the writer enjoys the memory of an apprenticeship of this character for six years and seventeen days; and whilst the continuance of this plan is almost obsolete—it cannot be properly a part of this paper to discuss the question—the fact is introduced only to locate this landmark of the times of fifty years ago and to recall the fact that as early in our history as 1854 an address was promulgated by this Association giving expression to the importance of adopting some measure by which the then present and future apothecaries of this widely extended country may be improved in their educational standing.

Prior to and since the organization of this Association, there existed and have been established colleges of pharmacy that have largely through their delegations or representatives to the annual meetings contributed to the progress of the science, and as a significant witness, thirty-one colleges of pharmacy and twenty-three departments of pharmacy in colleges and universities have been founded as noted here consecutively and in the order of their founding, and our table of landmarks would be incomplete without emphasizing the value of their work in the line of educational pharmaceutical progress. Let it be noted also with much interest that the initial meeting of this Association, called the National

Pharmaceutical Convention, was assembled on the call of the three colleges of pharmacy, New York, Philadelphia and Boston; and at the meeting when the name was established and adopted, the American Pharmaceutical Association, five colleges of pharmacy and one pharmaceutical society are recorded as being represented, viz:—Massachusetts College of Pharmacy, College of Pharmacy of the City of New York, Richmond Pharmaceutical Association, Cincinnati College of Pharmacy, Maryland College of Pharmacy, Philadelphia College of Pharmacy.

There have sprung from these educational centres those influences that demanded higher qualification to safeguard the public welfare, and in course Boards of Pharmacy have been established in many of the States of this continent and laws have been enacted to regulate the practice of pharmacy. State Pharmaceutical Associations have gathered inspiration from this mother Association of ours, whose laws are patterned after our constitution, and the greatest success of the State Association is with those who adhere closely to the custom and program of annual work as defined by this Association, and it is noteworthy that many of the annual reports are valuable additions to pharmaceutic literature.

We may here recall the names of some of the illustrious men who made a record well deserving a place in this paper: Charles T. Carney, Samuel L. Colcord, George F. H. Markoe, Charles A. Tufts, E. R. Squibb, P. W. Bedford, William Procter, Jr., Edward Parrish, John M. Maisch, Israel J. Grahame, Elias Durand, an honorary member; Alfred B. Taylor, Charles Bullock, Joseph Laidley, E. S. Wayne, W. Silver Thompson, Ferris Bringhurst, Charles A. Heinitsh, Charles Rice, W. Scott Thompson. Joseph Laidley and Ferris Bringhurst lost their lives by accident in pursuit of their profession; the former through gunpowder explosion, the latter whilst manufacturing oxygen gas.

The roll is a long and honorable one; we cannot name them all, as this is not to be a memoriam roster, but will serve to fix the characters who each in their sphere are more or less identified with the progress of the science. Most of those named have contributed largely to our work by word and pen, and here let it be recorded we are passing in review the acts of men who have rounded their lives; the work of the living we dare not embody in this paper, the worthy men of to-day are legion, but they, not having finished their

course, will be better subjects for the next jubilee papers, should they continue to do well.

I recall with great satisfaction a meeting in Baltimore when the subject of "Rhubarb" was considered, and Dr. E. R. Squibb, with his natural painstaking care, enlightened the Association with most instructive information, and during the discussion about all that could be said on the subject was there given.

Mr. Charles T. Carney's report on Home Adulteration, who with a committee of five others, one alone of the six surviving (our honored pioneer friend, Alfred Phineas Sharp, of Baltimore), will ever recall the beginning of conscientious effort to make unpopular substitution, sophistication and adulteration of drugs, medicines and culinary articles.

Almost contemporary with the organization of this Association the process of displacement or percolation was advanced. It was not originated by pharmacists so far as we are advised. We are informed in Holy Writ of the probability of utilizing wood ashes in leaching the alkali, as they also used soap in that period. The process is an old one and the application of the art has had various stages of elegance. Edward Parrish notes the French coffee-pot principle applied by the eminent firm of French Pharmaciens, H. Boullay & Sons. Their work was fully corroborated, elaborated and practically applied, as given in a paper, an original communication on Boullay's filter and system of displacement with observations drawn from experience, wherein proper recognition is given to the principle of the Cafetière de Dubelloy (the French coffee pot), Real's filter press, the long adapter of Mr. Robiquet, experiments of Mr. Guillermond, the work of Elias Durand, Mr. Emile Mouchon, an apothecary of Lyons, France, and Mr. Hany, Jr. We cannot give credit to these men as inventors of the art; at no time since the advent of the wood ash lye percolating tub or hopper has there been so much care bestowed in its application as has been since the work of Procter, Parrish, Duhamel, Israel J. Grahame, followed by Dr. E. R. Squibb, who became a specialist and eminently qualified as a collaborator with those named in developing still further the process of repercolation, which we presume will ever remain a memorial of his skill and genius.

We make this comparison: Do you remember—some do, we know—when the proper way to make the old-time tinctures was to

bruise the ingredients, place them into the shop bottle, agitate vigorously for a while the first few days, and then an especial duty was enjoined upon some one every Monday morning, so long as anything remained in the bottle, to shake the bottles from one end of the shelf to the other, decanting as wanted until the dregs were reached, and if the bottle capacity would allow, fresh portions were put with the old. We must emphasize, percolation marks a great advance. Just forty years ago we merged from the old to the new on a line of preparations which fixes a point in pharmaceutical history, noting a very decided advance on the manufacture of suppositories; the soap suppository had served its day and mixtures of wax and solid fats had also to be discarded to keep in line with the improvement; to the late Alfred B. Taylor, a retail pharmacist, an active member and first secretary of this Association, we owe the use of butter of cacao as a suppository base, and all the pharmaceutic world has learned to value this important subject. We doubt whether there is any preparation of the Pharmacopœia in which the revolution has been so complete. Other vehicles are used in some form of suppositories—gelatine, sodium stearate, which also mark advances in the time under review, but no one person has performed such a specific service as did Mr. Taylor in promulgating cacao butter as a suppository base. Let me quote a paragraph from the U. S. Dispensary, 1854:

"Their form may be cylindrical, conical or spherical. They should be of such a consistence as to retain their shape, but so soft as to incur no risk of wounding the rectum. It may be from 1 inch to 3 inches long and about as thick as a common candle. Soap is not unfrequently employed for this purpose—a piece of solidified molasses (molasses candy) is sometimes preferred." Reference is then made to AMERICAN JOURNAL OF PHARMACY, Vol. 24, p. 211, the work of Alfred B. Taylor.

Fluid extracts must hold a place specifically American, and the preparation and popular use of this class marks the work of our period, and whilst we can make no special claim to a discovery, we place on record the fact that we owe much, if not all, for the excellence in this line to two most earnest retail pharmacists, the distinguished and honored William Procter, Jr., and Israel J. Grahame; the latter during his best days and before physical infirmity assailed him, was a good type of an intelligent, honest and industrious phar-

macist. Dr. E. R. Squibb's masterful work on a larger scale was made possible by their prior labor and research.

We all remember with what diligence Prof. John M. Maisch made preparations for our annual meetings—for many years our permanent secretary—and yet with all other labor, our proceedings show that his contributions to the advance of pharmacy are most valuable as well as voluminous.

Of another great promoter of the art, who in his day contributed largely in developing pharmacy—Prof. Edward Parrish, a physician just rounding his fiftieth year of active practice—Dr. William M. Guilford, of Pennsylvania, writes: "Edward Parrish lectured to medical students, whilst we were students in the old University of Pennsylvania, at hours which did not interfere with our regular hours at the college; he not only lectured but put us to the practical work, writing and compounding prescriptions in his own laboratory, Eighth and Arch Streets. He was much beloved by his incipient M.D.'s, who will never forget his kindly face, his patience and earnestness. The practical value of his teaching was best appreciated by many physicians in after-years while in active practice." It will be remembered that Professor Parrish succeeded Professor Procter in his work of instructing students of pharmacy on a larger scale at a later date.

We note a very conspicuous advance, and well deserving a place in this paper, as we compare drug store and laboratory glassware. Go to our exhibition hall, note the former-day shop bottles, ointment containers, prescription vials and bottles; compare with the neatly finished glassware of to-day, put them side by side with the ware of that day, run the eye along the line from the minute gramme vial to the huge glass container with capacity of thirty and more gallons, and note also, with special critical eye, the absolutely perfect finish in every detail. This is in a large measure due to the encouragement of this Association. I may simply recall an incident at one of our meetings held in Louisville, Ky., when a representative of one of our leading glassware manufacturers took special pains to obtain such points by interviewing our members that would enable his firm to perfect the lip of the prescription-bottle. The growing want of the laboratory and dispensing store for glassware during our history safely defines conditions then and now.

Elegance and excellence in pharmacy, as compared with former

days, are significant landmarks. We refer especially to pills, round in form or compressed, elixirs and plasters. The pharmacist cannot lay claim to invention in the matter of sugar-coating pills; it, like percolation, has been borrowed to apply in the advances and development of the art. We have always been clever enough to know a good thing when we see it and how to apply the improvement if it serves our purpose so to do.

As a representative of the retail branch of the profession, and with great deference to the skill and labor of wholesale manufacturers, I cannot pass unnoticed the fact that most of these advances have developed behind the counter and in the laboratory of the retail pharmacist.

They were worthy men who had a part in this development, whose portraiture has been presented to you in retrospect, and who have established landmarks. Dare we say that they have lived in vain? We may say only they have gone before and they still live in their deeds, and though dead their labor bears testimony to-day. Some of us are a generation younger, and by far the larger membership to-day comparatively younger by several decades. We may view this honor roll and find in the men and their characters an example worthy of emulation. It is well believed that in the providence of God the evangelization of the millions in heathendom must be accomplished by personal contact through education as the current of a new life—so may we well and properly conclude that the development of our profession for the past fifty years has been accomplished largely by the personal influence, the unflagging integrity and career of usefulness of the men that constitute this tribute defining the status and landmarks of American pharmacy.

OUR CENTENNIAL.¹

BY JOHN URI LLOYD.

Strange, is it not, that standing as to-day we do, in the fulfilment of this semi-centennial of our Society, one among us should look forward and venture to refer to "our Centennial," as though the years that separate us from a future period, doubling as they must

¹ Read at the Special Jubilee Session of the American Pharmaceutical Association, September 11, 1902.

the age of our Society, were here? And even more strange is it that one who feels assured that neither matured friend nor himself will then stand here, should thus preface his remarks and thus title his subject? Few among the very youngest men present can hope to meet with those who fifty years from now will celebrate this centennial anniversary. Audacious, then, in view of these facts, is it not to head this paper "our centennial," this paper which bespeaks an event destined to occur more than a generation hence?

Let us, however, ask whose by right is the semi-centennial jubilee we hold this day? Let us see who it is that stands conspicuous in all that takes our thought and action on the present occasion. Surely not you and I, my friends, even though we may have been in rank these many years, even though a few can look back to the very beginning. You who listen to these words, you whose faces, be they young or old, turn upon me as I speak, meet not here to celebrate your own good selves. Even the concern of the pioneer is not in laudation of his own works—he celebrates not himself. Nor do we meet to glorify those whose names on our printed program are designated as taking part in these exercises. Nor to those whose turn it is either to precede or follow me this day in a word of tribute or a kindly offering in behalf of this Society's semi-centennial. Nor yet to those of our members whose business cares or physical misfortunes prevent their personal presence on this happy occasion. This is not a self-admiration society. The men who move before us and speak aloud this day do not, on their own account, bring us together on this our markedly eventful mission.

No. The unseen touch that comes to each heart, as memory tells of the past and of men no longer with us, beats the throb *no*. The silent voice that no longer vibrating air or touching ear, yet clear and distinct both in accent and modulation, lingers in recollection to him who knew it once, bids us speak the word *no*. The printed line that tells of action done by an ever-to-be absent comrade lies in a volume on our shelves, but the words are not a slumbering nothing. To us who heard their creator speak, they yet linger in realms realistic and bid us give credit to absent friends who earned their part in this semi-centennial of our Society. Behold, where sits the present secretary, rises to our mind's view another face. Where stands our president, a chain of absent faces uplift themselves. Our treasurer has genial company in our thought.

Where sit those ex-presidents and officers, we, who look upon them, see other forms. Where journalists, authors, scientists, educators, men of learning and men of action gather before us, others wedge in, invisible to all but such as knew these other men in these places. Messages of kindly greeting offered in days gone by awaken as their faces spring before us and touch our hearts. Conjured into shape and form are these greetings by memory's charm, but real as life are they to him who feels the touch. Gone are rivalries, the antagonisms, the differences and varying ambitions of all these men. Lost are they to sight and touch under the soporific influence of the hand that winds the years away.

Let us not mistake, my friends, the dominating feature of this semi-centennial of our Society is the tribute of praise we offer our absent comrades. A monument of love it is to their good works, and our joy is largely in this opportunity to voice our pride in their gift to humanity, our inheritance.

Bid now a momentary farewell to the phalanx memory creates. Turn thought onward. A second fifty years begin. The future looms before us. The spindle of time turns, the years reel off. One by one the faces of the men present this day turn to dust and disappear in vacancy. The babe unborn creeps, rises and stands upright, strong in life's pride. The child of to-day becomes of age mature. The Society lives on. Then comes at last another knot in the line Time spins. A second day of jubilee is here. Another fifty years have passed.

Unheard are the voices of those who this year, 1902, made the call for this semi-centennial. The printed envelope bearing the invitation of this second jubilee celebration is dated 1952. It comes not to our homes. The program of the day bears not our names. Men we have never seen have taken our place in thought and work. Gone are we into the silences. Other feet seek this spot where their forefathers one hundred years before met to organize the society that through our hands came into their keeping. Their eyes turn backward, as ours do now, and we are seen as we now behold those who met in this place fifty years ago. To the mind of him who then thinks, and of him who then reflects, will come a cherished touch, like that which comes to you now, my friends. The same, it must be the same, and yet not altogether the same. As we look back and note the stopping place of this or that friend,

whose work we now celebrate in this semi-centennial, so must they look back, but not upon the same memory creations. The program of that eventful occasion will be marked *Centennial*, not *Semi-Centennial*, and those who celebrate the occasion will meet, not to glorify themselves, but to honor all whom we meet to honor and, I bid fair to hope, ourselves as well. It will be their jubilee session in honor of *Our Centennial*, the centennial that marks the uplifting of heart-monuments to absent comrades.

Let us, then, in this jubilee greeting we offer to our past comrades, hope and trust that when the next fifty years have been unwrapped and the second call is made, the part we have taken in behalf of this Society may bespeak for us in kindly touch the backward thought of those who join therein.

AN ODE¹

TO THE FOUNDERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

BY GEORGE M. BERINGER, A.M., Ph.G.

Thrice welcome day, all hail to thee,
We salute thee, pharmacy's jubilee.
The sands of time are flowing fast,
The fiftieth mile will soon be past.
Yet, ere we take the final forward stride
That "this" into history of "the was" doth glide,
In meditative mood we pause
And backward gaze and muse
From the spring that perpetual flows
The source unknown, no eye discloses;
It's memory's own, she controls, she draws
Such copious recollection showers
And dashes the remembrances o'er us.

Our retrospect, a vision clear,
Five great stone arches do appear;
Each span a decade marketh here
The last just completed with this year.
Now half way o'er a century's stream
A noble work accomplished it doth seem.
In the distance, still bright to view,
The first boulder stone laid firm and true;
Carved its face indelible, "eighteen fifty-two,"
Our model ever, we finish nineteen two.
For hopes spring amid ambition's glow,
Just as they did fifty years ago.

¹ Read at the Semi-Centennial Jubilee Session, September 11, 1902.

No worship of the heroes of war and strife
Is nobler than praise of deeds of peaceful life.
Pioneers these, who achieved in science and in art;
Progress their watchword, faithful toil their part.
Their labors so perfect, their works so pure,
Bright examples gleam as from God's azure.
In the gladness of our golden jubilee
We extend the praises of all pharmacy
To the art and sciences, the early devotee.
Recalled by memory's fantastic flight,
We see their forms; their faces bright,
E'en their voices from these walls resound,
Though now, with our tributes they abound.

Each year, earnest pilgrims to their shrine
Add new efforts and extend the line,
With added strength, the later arches wider
Each, the progress of its age, the bold recorder.
The ever-living words of the immortal Procter
Cements the masonry—needs no other mortar.
"On virtue we must in our actions stand,
Or our association might as well disband."

The sun, slowly rising, dispels the gloom
And early morn proclaims to man and bloom.
Then, higher rising, bursts forth in full power,
The perfect day demands the perfect flower.
The past, the present, now are ours
To shape and mould for future powers.
Duty calls for builders to the line;
Pharmacy, unexhausted field and mine,
Demands new energies in the fight
And strenuous labors for the right.
To the future, the present must our heritage
Transmit with greatly added store and page.

THE PREPARATION OF OLEATES, OLEO PALMITATES AND OLEO STEARATES IN POWDER FORM.

BY FREDERIC E. NIECE.

(Concluded from the September issue.)

Warm the stearic acid in a glass vessel to just its melting point; to this add the oleic acid previously warmed to just its boiling point and mix the two acids intimately with a glass rod. Now add the alcohol, which has been warmed to just its boiling-point, and mix all

three together thoroughly by constant stirring until cool. After cooling, if any hard lumps are noticeable in the mixture, they should be removed by heating, then straining through a piece of wide meshed cloth, then cooled again by constant stirring. Now heat solutions No. I and No. II to just their boiling-points and quickly as possible pour the two solutions simultaneously into a gallon glass or porcelain vessel. Stir the resultant mixture vigorously until it becomes cool. The result is a thick, soapy, alcoholic solution of oleo-stearate of potash. Gently reheat the above solution to a lukewarm state and to it add 2 pints of boiling distilled water and again mix completely by vigorous agitation. After a complete mixture is obtained, quickly as possible pour into it the prepared solution of zinc acetate which has been warmed to just its boiling-point and thoroughly stir this combined solution to a uniform mixture until cool, which then has a creamy consistency. When cool, add two more pints of boiling distilled water and stir this mixture until this is also cool.

The solution, as prepared above, then contains the oleo-stearate of zinc and by-products, which latter are to be disregarded.

To separate them, pour the solution on a piece of moistened draining-cloth (common toweling is best), with close meshes, suspended over a vessel to catch the washwater. Collect the precipitate on the cloth and return the washwater to the drainer from time to time until it shows but a slight turbidity. Wash the precipitate on the drainer repeatedly with quantities of warm water until the washwater is free of all traces of the acetate of potash and is neutral to litmus paper. After neutrality is accomplished, the cloth and its contents are suspended in a moderately warm place, well protected from contamination and allowed to thoroughly dry. When well dried the mass is then triturated to a fine impalpable powder. The powder, if carefully prepared, has a nice, fluffy, white appearance; smooth, soft and greasy to the touch, and possesses a pleasant, bland, fatty odor, somewhat aromatic, and neutral in reaction.

In the preparation of the oleo-palmitates the only deviation necessary in the process is the use of 450 grains of palmitic acid instead of the stearic acid, and the process then followed out as stipulated, with results corresponding to substances used.

In working with larger quantities than here specified, the alcohol in the washwater may be reclaimed by adding sufficient potassium

permanganate to the water to give it a permanent pink color, and the process of distillation resorted to for its removal. The combinations which may be formed by the addition of other substances are as numerous as they are varied. A partial list is here given, which may be used with one another in varying proportions. Those most generally used are: Acetanilid, acid boric, acid carbolic, acid pyrogallie, acid gallic, acid tannic, acid salicylic, alum, balsam peru, bismuth subgallate, bismuth subnitrate, calomel, camphor, chrysarobin, creosote, guaiacol, ichthyol, iodoform, menthol, naphthol, oil cake, resorcin, salol, sulphur sublimed, tar, thymol and zinc oxide. A pleasant oleaginous preparation can be produced with the powdered oleo-stearates or oleo-palmitates, in combination with any of the above-mentioned substances, by incorporating the same with a quantity of pure, bland, odorless and colorless liquid petroleum.

The following formula gives an idea of the method involved:

MISTURA OLEO-PALMITATE ZINCI WITH ACIDS BORICI AND CARBOLICI.

Powdered oleo-palmitate of zinc	3 ij
Acid boric	ʒj
Solution acid carbolic	℥v
Liquid petroleum alba, q. s.	3 ij

Triturate the oleo-palmitate of zinc and boric acid with the petroleum; to this add the solution of carbolic acid, and agitate to a homogeneous mixture. Always agitate before using.

RECENT LITERATURE RELATING TO PHARMACY.

CANNABIS INDICA.

E. M. Holmes, F.L.S. (*Phar. Jour.*, Aug. 16, 1902) gives some extracts from a "Report on the Cultivation and Use of Gánjá," by Dr. D. Prain. The names that are applied to the different preparations or different forms of this drug as it occurs in India, are of interest.

Gánjá.—This is the most important preparation of the plant, from the point of view of medicine or pharmacy. It consists of the flowering tops of the female plants, deprived as much as possible of leaves.

Gausa.—This is applied to gánjá which comes from Bombay; it is usually considered inferior in quality to that from Calcutta.

Bhang.—This consists of the selected leaves of the plant, dried and broken up into coarse powder. The leaves of the male plants or of the non-resinous female plants are not taken.

Haschisch.—This word literally means "the plant," and is used in Syria, Turkey and Egypt to indicate bhang, churrus and even alcoholic preparations of the plant.

Majun is applied to a sweetmeat or confection, of which cannabis indica is the basis. It may, and often does, contain other drugs, according to the purpose for which it is intended.

Chur.—This is applied to the broken or detached heads of gánjá.

Charas, or *Churrus*, is the resin obtained from the flowering tops and is collected in different ways, in different districts.

It is perhaps interesting to note that churrus is not made in Central India. In Punjaub and Nepal it is collected by hand from unreaped plants. In Ladak, Yarkand and Turkestan it is collected by beating reaped plants upon coarse cotton cloths, to which the resin adheres. Churrus is also said to be made in Greece, but whether on the mainland or on the islands of the Greek Archipelago is not known.

The classical account implies that it is produced in Central India, but inquiries made by Dr. Prain show that this is not so. The curious story that is usually told in this connection, of its being obtained by natives rushing through the hemp fields, and the resin being subsequently scraped from their leather jerkins or naked (oiled) bodies, is difficult to trace to its origin. Extensive inquiries by Dr. Prain failed to produce any evidence that it was, or ever had been, collected in this way.

From a study of the resin, and the manner of its occurrence on the plant, Dr. Prain concludes that it is not likely that naked men with oiled skins could collect much churrus in that way.

M. I. W.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The fiftieth annual meeting of the American Pharmaceutical Association was held in Philadelphia, September 8-15th, the Hotel Walton being the headquarters of the Association. The audience that assembled at the first general meeting on Monday afternoon, September 8th, was notable in numbers and as representing the allied interests of pharmacy throughout the land; and testified to the universal interest in this the jubilee meeting of the Association. The President, Dr. H. M. Whelpley, introduced the Hon. Samuel H. Ashbridge, Mayor of the city, who welcomed the Association in a brief address. M. N. Kline welcomed the Association in behalf of the local committee of arrangements and said that he was glad to see so many present, and that it was eminently appropriate for the fiftieth anniversary to be celebrated in Philadelphia, as the first president of the Association was born here, and here was established the first school of pharmacy. Here Wood and Basche taught and here Procter and Parrish lived and worked. Warren H. Poley, president of the Philadelphia Association of Retail Druggists, welcomed the members on behalf of that organization, stating that it has a membership of 550 out of a total of 700 druggists.

In response to the addresses of welcome, Wm. C. Alpers, of New York, spoke on behalf of the members of the East; E. G. Eberle, of Texas, for the Southwest and Wm. E. Frost, of St. Paul, for the Northwest.

President Whelpley stated that he recognized his responsibilities and invited all the living ex-presidents present to come upon the platform with him. The First Vice-President, Wm. M. Searby, took the chair while the president delivered the annual address. The latter was devoted to a review of the important work done by the Association for the elevation of American pharmacy, and also to the consideration of means whereby the Association might be benefited. The address contained some twenty-one definite suggestions, of which we mention the following:

"Article IV of Chapter IX of the by-laws requires every person presenting a paper which will require more than ten minutes to read, to accompany the paper with a synopsis which will not require more than ten minutes for presentation. Every person presenting a paper should also be required to furnish an abstract for publica-

tion in a program to be issued under the direction of the officers of the section to which the paper is referred. Authors of papers should be furnished a specified number of reprints, free of charge."

It was suggested that a standing committee on "A Model Pharmacy Law" be established, this committee to co-operate each year with the presidents and committees on legislation of the various State associations in furthering the general adoption of the model law. Annual reports should be made to the A.Ph.A., giving the progress of the work and submitting such changes in the original draft as may be deemed advisable.

"This Association should encourage, in every possible way, an improvement of the quality of apprentices and the conditions of apprenticeship. In providing the pharmacists of the future, we must select proper seed, plant it in fertile soil, and not harvest the crop until the fruit is ripe."

The president also recommended the publication in a separate volume of a general index to Volumes I to L of the annual Proceedings.

The address was referred to a committee of three, consisting of S. A. D. Sheppard, A. E. Ebert and J. N. Hurty, who later favorably reported on the suggestions contained therein.

At the second general session on Tuesday morning, the Nominating Committee presented its report, the nominees recommended being elected to the respective offices as follows: President, George F. Payne, Atlanta, Ga.; First Vice-President, William L. Cliffe, Philadelphia, Pa.; Second Vice-President, E. G. Eberle, Dallas, Tex.; Third Vice-President, H. P. Willis, Quebec; Secretary, Charles Caspari, Jr., Baltimore, Md.; Treasurer, Samuel A. D. Sheppard, Boston, Mass.; reporter on the progress of pharmacy, C. Lewis Diehl, Louisville, Ky.; members of the council: John F. Patton, York, Pa.; H. M. Whelpley, St. Louis, Mo.; C. S. N. Hallberg, Chicago, Ill.

Geo. W. Kennedy, the secretary, read the minutes of the council since the last meeting, and on moving their adoption, C. A. Mayo recommended that the resolutions passed by the council in memory of Wm. S. Thompson, who had been chairman of the council for some years and who had served the Association faithfully for years, be adopted by the Association at large, which was carried by a rising vote. The recommendation of the council to the effect that a historical section be inaugurated was discussed, and finally it was

decided that a historical committee be appointed to report annually to the Association.

Owing to the difficulty of awarding general prizes, the chairman of the committee, Wm. Mittelbach, Missouri, recommended that hereafter, the papers submitted be classified in accordance with the department of pharmaceutical science or art of which they treated, and that one prize be awarded in each department.

The Committee on National Legislation, through its chairman, Frank C. Henry, reported that very little legislation had been accomplished at the past session of Congress that affected pharmacy. Joseph Helfman, Detroit, called attention to the important law which had been enacted at the close of the last congress which prohibited the sale of antitoxin at a date later than that borne by the package sold.

The report of the Committee on Semi-Centennial was presented by the chairman, George M. Beringer, which was adopted with a vote of thanks for the commendable work of the committee. Lewis C. Hopp, Cleveland, chairman of the Committee on membership, presented a report containing several recommendations. This was followed by the report of J. W. T. Knox, Detroit, chairman of the Auxiliary Committee on Membership, in which it was recommended that the Association publish an official monthly journal to take the place of the annual volume of Proceedings as now issued. A committee of five was appointed to consider the recommendation. This was further discussed at a special session held in the evening and at several meetings of the council, but it was decided to lay the matter over until next year.

The third general session on Wednesday morning was devoted to short talks by those having exhibits at the meeting or by their representatives. The historical exhibit arranged by the committee having in charge the Jubilee Session proved of great interest, as the committee had collected valuable manuscripts, rare books, apparatus and specimens of historical interest, as well as the fixtures and shop-ware of an old-time drug store. Prof. J. U. Lloyd read a paper on "Prehistoric Pharmacy," which will be published in a later issue of this JOURNAL. The special features of these exhibits will be described in a separate paper.

At the last general session held on Monday afternoon, September 15th, the Secretary of the Committee on Membership reported that

about 250 applicants had completed their requirements for membership in the Association and had been duly elected at this meeting. Dr. Frank B. Woodbury, delegate from the American Medical Association, expressed his appreciation of the work accomplished by the delegates of the A.Ph.A. to the Section on Materia Medica and Therapeutics of the American Medical Association. The Committee on Time and Place of meeting reported that Mackinac Island, Mich., had been selected as the place for the next meeting, the time set for the meeting, August 10, 1903. The Committee on Exhibits, Chairman, Thos. P. Cook, of New York, reported a balance of \$950.16, and this was accepted with a hearty vote of thanks. The Committee on Weights and Measures reported through the Chairman, Frank G. Ryan, Detroit, that satisfactory progress had been made and that the measures before Congress would be probably adopted at the next session. Mr. Kline moved that the Association place itself on record as favoring reduction on the tax on alcohol, which was carried. Mr. Searby stated that under the present ruling crude drugs which are subject to fermentation on account of the necessary treatment to prepare them for the market are classified with the fermented liquors and are subject to duty, whereas crude drugs are admitted free, and offered a resolution to place them on the free list, which motion was carried. Mr. Mayo then moved that the President appoint a committee of twenty-five to confer with the Trustees of the Carnegie Institution in regard to formulating measures providing for pharmaceutical research under the auspices of that Institution, which motion carried. The Secretary then read a number of telegrams and letters of congratulation from individuals and societies in this country, and abroad as well. The council had recommended making extracts from these letters and printing them in the proceedings and it was so ordered. C. S. N. Hallberg, chairman of the delegation to the American Medical Association, reported on the work accomplished by the section on materia medica and therapeutics at the last meeting and said that two papers presented by the delegation were given special consideration, viz.: on "Hypnotics and Analgesics," by Dr. Jelliffe, New York City, and on "Metric Weights and Measures," by himself. George F. Payne, chairman of the Committee on the Status of Pharmacists in the U. S. Employ, reported that the title of pharmacist had been given to the Hospital Stewards of the Marine Hospital Service, and that Dr. Rixey,

the Surgeon-General of the Navy, favored making pharmacists in the employ of the Navy commissioned officers. Mr. Wilbert then presented a recommendation to the effect that the metric system be used whenever practicable in connection with the work of the Association, which was carried. He also moved that in order to facilitate the work in the various sections, all authors be required to prepare written abstracts of their papers for presentation, which was also favorably acted upon. The by-laws were amended so as to give each of the sections two sessions each at each meeting of the Association. The recommendation passed by the Scientific Section approving the establishment of a drug laboratory by the Government was also adopted by the Association. Resolutions were passed endorsing the action of the Scientific Section relative to "standardizing dose measures" which had been recently adopted at a pharmaceutical meeting of the Philadelphia College of Pharmacy (see p. 243 in the May issue of this JOURNAL). The report of the Committee on Procter Memorial was read by the chairman, Joseph P. Remington, in which it was recommended that the life-membership fund be known hereafter as the Procter Fund, and that a special committee of five be elected by the council to award a Procter-Squibb medal for high scientific attainment. It was also recommended that a button-badge having a bas-relief of Professor Procter be made for those in attendance at the annual meetings. After some discussion the report was accepted.

SCIENTIFIC SECTION.

The time of the Scientific Section was limited to two sessions, but nevertheless a large number of papers were presented. Lyman F. Kebler, the chairman, presented the annual address, which was devoted to a review of some of the recent advances in chemistry and to a discussion of some pharmacopœial problems. The speaker referred particularly to the necessity of the adoption of uniform methods in the assay of drugs, and recommended that the Subcommittee on Proximate Assay of the Pharmacopœial Revision Committee report the results of their work annually to the Scientific Section of the A. Ph. A.

The address was referred to a committee which, later, through Virgil Coblenz, the chairman, reported as follows: "It is recommended that the Pharmacopœia Committee authorize the continu-

ance of the work of the Sub-committee on Proximate Assays, which should extend over the entire period of ten years following the last revision, and that the results be reported from year to year to the Scientific Section of this Association. During past revisions the Pharmacopœia Committee has, as far as the funds available permitted, carried on investigations in various fields, and while we recognize the value and desirability of more work being concentrated on the subject of proximate assays, yet this recommendation will largely depend upon the size of the fund which may accumulate after the issue of the coming revision. We suppose that the chairman of the Committee of Revision will have no objections to the presentation of the results of future investigations to the Scientific Section. The criticism relative to the extreme rigidity of present Pharmacopœia standards is a point well taken and fully recognized by the Committee of Revision, and such errors of stringency will certainly be corrected."

Various reports were read at the first session, the first being an elaborate report by the Committee on Drug Market, which was presented through the Chairman, E. L. Patch. The report was accompanied by resolutions relative to the promise of support by the Association in the establishment of the new drug laboratory in connection with the work of the Bureau of Chemistry of the U. S. Department of Agriculture. These resolutions were favorably acted upon by the Section and subsequently by the Association. Dr. H. W. Wiley, who was present, spoke of the objects of the new drug laboratory and said that it would be to unify by association the work of pharmaceutical chemists, just as that of agricultural chemists had been unified so that the work of different chemists in different places would be comparable.

The Ebert Prize, it was announced, was awarded this year to J. O. Schlotterbeck and H. O. Watkins for their paper on "The Alkaloids of *Adlumia Cirrhosa*." At the second session the following officers were elected: Chairman, J. O. Schlotterbeck, Ann Arbor; Secretary, Joseph W. England, Philadelphia; Associate, Francis Hemm, St. Louis. A. B. Lyons, Chairman of the Research Committee of the Scientific Section, reported the work that was being done by the various members, most of which is embodied in several papers presented to the Section. The report of the Special Committee on the Revision of the U.S.P. was presented by the Chairman,

R. G. Eccles, and contained a number of suggestions tending to improve some of the official preparations. It referred to the awkward position the Committee found itself in by being asked to make a report too late for use in the 1900 revision and too early for that of 1910. Such suggestions as might be made may have already been adopted. The plan was chosen of advising changes, certain not to be made now but that exist as possibilities for the future, and adding to these a few points which it was thought may have been overlooked by the present revisers. Physiological and volumetric or gravimetric standards for alkaloidal and glucosidal drugs had been rejected. The Committee thought that these should, at some time not too remote, be accepted, as by fixing such standards the quality of the goods will be kept up, even if pharmacists are not able to apply the tests. Commercial competition will do it. Since most of the plasters sold by druggists have a rubber base, the presence of this rubber in plasters should be acknowledged in order to lessen the danger of conflict between pharmacists and drug-adulteration laws. Solid extracts made with acetic acid as well as those made with alcohol should be acknowledged. For external use, in plasters and the like, methyl alcohol extracts should be permitted. Powdered extracts should be more extensively adopted or directions should be supplied for the preservation of the proper consistence of all official extracts. Extract of belladonna-leaf stains, has a bad odor and is of very variable strength. Extract of the root should take its place. Belladonna plaster should be standardized and the British and American standards should conform to each other. Belladonna liniment should be replaced by a solution of camphor and atropine. A belladonna and capsicum plaster should be made official. Compound licorice powder should get rid of its excess of insoluble lignin by substituting powdered extract of licorice for powdered licorice root. Commercial licorice should have a test that would exclude water-soluble adulterants like sugar and dextrin. As there are natural wines with an alcoholic strength of 15.5 per cent. by weight, our present standard should be raised to this figure. Wine of ipecac should be replaced by a solution of emetine hydrochloride. In making aromatic spirit of ammonia twice the quantity of alcohol now ordered should be used. This would make a 10 per cent. solution, which could be lowered to the desired standard by dilution. The ignition of the organic alkalies should be complete

and all the organic matter destroyed before using the acidimetric test in salts like benzoate and salicylate of sodium. In the test for creosote, 1.75 grammes, instead of 1.3 grammes, of sodium hydrate to every 4 c.c. of creosote should be used. In solution of hydrogen dioxide the text should tell how much, if any, acid and the kind of acid that should be permitted for preserving it.

The following papers were presented, which are herewith given in abstract:

CONCERNING SCOPOLAMIN AND SCOPOLIN.

By Ernst Schmidt, Marburg, Germany.

An abstract of this paper was presented by Henry Kraemer, Philadelphia. The paper dealt particularly with preliminary experiments which had for their object the establishment of the constitution of scopolin. On the treatment of the latter with hydrobromic acid it is changed into a dihydroxyl derivative, which action he explained by supposing that one of the oxygen atoms is arranged in a morpholine-like combination. The author stated that one of three possible constitutional formulas may be ascribed to scopolin, and subsequent work should reveal the true constitution.

ON GUAIAIC-BLUE AND ALOIN-RED AND THEIR USE FOR CHEMICAL REACTIONS.

By Ed. Schaer, Strassburg, Germany.

Charles Caspari, Jr., read an abstract of this paper, in which the author points out the sensitiveness of guaiac-blue and aloin-red reactions, the analogy between them, and indicated the instances when they may be of particular value in chemical analysis: (1) In the detection of aloes, *i.e.*, aloin; (2) in the detection of the presence of different cyanic compounds and of haloid salts; (3) in the detection of free ammonia in air or in distillates; (4) for the detection of copper in the form of cupric salts; (5) for the detection of active organic substances able to carry oxygen.

THE CHEMISTRY OF THE STEM OF DERRIS ULIGINOSA BENTH.
(AN EASTERN FISH POISON.)

By Frederick B. Power.

An abstract of this and the following paper was presented by Charles Caspari, Jr.

The following is a summary of the essential results of the experimental work of the author; the alkaloid which it is said occurs in the bark could not be obtained. The bark contains 9.3 per cent. of tannin, which is colored greenish with ferric chloride. It also contains capric acid, arachidic acid, stearic acid, ceryl alcohol and two isomers of cholesterol; there are present two resins, the one being soluble in chloroform and the other insoluble in chloroform, a portion of which consisted of a glucoside; the tonic action of derris on fish appears to be due to some constituent of that portion of the resin which is soluble in chloroform and not to the tannin.

THE ANATOMY OF THE STEM OF DERRIS ULIGINOSA BENTH.
(AN EASTERN FISH POISON.)

By P. E. F. Perrèdès.

Derris uliginosa is very abundant in Wakaya, where it is known as "Duva," but on the other islands of the Fiji Group it is somewhat scarce on account of having been largely used by the natives as a fish poison. The author described in detail the anatomy of the stem, which was accompanied with numerous well-executed drawings.

THE QUANTITATIVE ESTIMATION OF STRYCHNINE IN MIXTURES OF
STRYCHNINE AND BRUCINE.

By H. M. Gordin.

The author has worked out the following method for the separation of strychnine and brucine:

The mixed alkaloids, for example, the residue of total alkaloids obtained in the assay of nux vomica from 8 or 10 grammes of drug, is dissolved in 15 c.c. 3 per cent. sulphuric acid by the aid of water-bath heat, the solution is cooled to ordinary temperature and 3 c.c. of a previously prepared and cooled mixture of equal parts of strong nitric acid (sp. gr. 1.42) and water added to the alkaloidal solution. The liquid is set aside for exactly ten minutes, shaking it gently three or four times during this time. The red liquid is now transferred to a separator containing 20 or 25 c.c. of 10 per cent. sodium hydroxide solution,¹ and the vessel in which the digestion of

¹ It is best to place the alkali in the separator while the alkaloids are being digested with the acids so that after the lapse of ten minutes, when the acid liquid is poured into the separator, the action of nitric acid upon the strychnine is quickly arrested.

the alkaloids had taken place is washed three or four times with very small amounts of water. The liquid in the separator will now be very turbid from the separation of strychnine. If this is not the case, there is not enough alkali, and a further addition of 1 or 2 c.c. alkali must be made. After the addition of sufficient alkali the liquid is shaken out three times, with chloroform, using 20 c.c. for the first shaking out and 10 c.c. each time for the two subsequent ones. The chloroformic solution is filtered through a small plain double filter arranged so that there are four folds of paper on each side into a light tared flask, taking care to wash the stem of the separator with a little chloroform; the filter and stem of the funnel are also washed a few times with small amounts of chloroform, and to the perfectly colorless solution of strychnine thus obtained are added 2 or 3 c.c. of pure amyl alcohol which distills between 128 and 132° C., and leaves no residue on evaporation.¹ The chloroform is now distilled off completely and the small amount of amyl alcohol left behind removed by keeping the vessel on the water-bath and blowing air over its opening, but so as not to blow out some alkaloid by the air current. The vessel is now dried for about two hours at a temperature of 135° to 140° C., and when cold weighed.

TINCTURE OF ACONITE.

By M. I. Wilbert.

The author calls attention to the fact that the official tincture of aconite is dangerously potent and that it is much stronger than the same preparations in other Pharmacopœias. The U.S.P. preparation is seven times stronger than that of the British, three and a half times stronger than the German, and nearly double the strength of that in the French Pharmacopœia. The author further says that at the present time there appears to be no tangible reason why this tincture should not be materially reduced in drug content, so as to bring it more in harmony with the same tincture official in foreign pharmacopœias, and also to make it conform with other tinctures of narcotic or active drugs in our own Pharmacopœia. He recommends that the strength be reduced to 15 per cent.

¹ The amyl alcohol prevents very effectively the decrepitation of strychnine which unavoidably occurs on the removal of the last traces of chloroform by heat. See F. C. J. Bird, *Pharm. J. Tr*, September 8, 1900, 286.

EXAMINATION OF PODOPHYLLIN.

By H. M. Gordin and C. G. Merrell.

The experiments of the authors tend to show that though we have no means at present to isolate quantitatively the active principle or principles of podophyllin, we can without difficulty tell whether a given sample of podophyllin is adulterated to a considerable extent or not. If we put up the following requirements for *pure* podophyllin it would be very difficult for an unscrupulous manufacturer to adulterate the resin so skilfully that the product will answer all the following requirements. It would, for example, be easy to adulterate podophyllin with another alcohol soluble substance, or an ether-soluble substance, etc., but it is hardly possible to find a substance that will behave toward the following requirements exactly like podophyllin. These requirements are as follows:

- (1) Pure podophyllin must be completely soluble in about twice its weight of cold alcohol.
- (2) It should contain about 64 per cent. ether-soluble and about 74 per cent. chloroform-soluble matter.
- (3) It should contain about 22 per cent. crude picropodophyllin when assayed by the method described.

Before putting such requirements into the Pharmacopœia it would be advisable to prepare podophyllin from different samples of mandrake root, subject the different podophyllins so obtained to such an examination as here described, and in this way establish a mean value for ether and chloroform-soluble part, as well as for the amount of crude picropodophyllin which should be contained in this very important drug.

THE AMERICAN MILK-PRODUCT INDUSTRY.

By Joseph W. England.

The author in a lengthy paper referred particularly to the manufacture of milk-sugar, casein and other products derived from cow's milk, and stated that to-day fully three-fourths of all the milk-sugar produced in the world and probably a larger proportion of casein is made in the United States. The paper is interesting in that it presents a historical resumé of the subject and gives the status of the milk-product industry in the United States to-day.

SOME CURIOUS OILS.

By L. F. Kebler and Geo. R. Pancoast.

The authors have been collecting information for several years on some curious oils from various sources, viz.: Adder oil, angle-worm oil, ant oil, bait oil, bat oil, bear's oil, bear's fat, beaver's fat, brick oil, calendula oil, clover oil, catfish oil, crocodile and alligator oils, deer oil, dog oil, eel oil, fox oil, habacuc oil, hedgehog oil, lobelia oil, mullein oil, mink oil, mercury oil, mermaid's oil, ozonated oil, pickerel oil, porcupine oil, porpoise oil, rabbit oil, rat oil, raccoon oil, rhodium oil, rattlesnake oil, skunk oil, stillingia oil, stork oil, sturgeon oil, swallow oil, sweet cicely oil, turtle (green) oil, and viper oil.

EXPRESSED OIL OF SWEET ALMONDS AND ITS SUBSTITUTES.

By Geo. R. Pancoast and L. F. Kebler.

The authors claim that oil of sweet almonds is fast becoming a commercial curiosity—being almost entirely supplanted by substitutes. They believe that but a small amount of oil is expressed from sweet almonds, nearly all of the sweet kernels in the market being used by the confectioners. The fluid obtained from bitter almonds is found in commerce, but it is labelled oil of sweet almonds. For every pound of the article imported, at least one hundred pounds of peach kernel (from *Prunus persica* Jess) or apricot kernel (from *Prunus armeniaca* L.) oils are also imported. They hope that in the future these oils will be properly labelled.

STANDARDIZING DOSE MEASURES.

By M. I. Wilbert.

In this paper the author calls attention to the possible errors that might be caused either by the inaccuracy of the medicine-measures themselves, or by the fact that these measures are but poorly adapted for accurately measuring liquids in small quantities. The object in doing this being to have the Association, if possible, endorse the resolutions that were adopted at a recent pharmaceutical meeting of the Philadelphia College of Pharmacy.

The resolutions were adopted by the Scientific Section and subsequently at a general session of the Association.

THE CREOSOTE QUESTION.

By William Mittelbach.

The author refers to the action of the A.Ph.A. regarding the nomenclature of creosote and said it was hoped that "coal-tar creosote" would be dropped from the price lists of manufacturers, etc. With but few exceptions coal-tar creosote is quoted as conspicuously as heretofore, one has it "commercial creosote," another quotes it "German creosote," and still another "the white from coal tar." The author contends that the use of the word creosote in connection with any other product except that from beechwood, should be made a violation of law, just as much as the word listerine when used by substitution. The author points out that many pharmacists and physicians buy the cheaper product regardless of its derivation, and they seem to care nothing for quality. It is the price apparently of the coal-tar product that keeps it in use and not the merits of the article.

THE PRESENCE OF ARSENIC IN CHEMICALS.

By Lyman F. Kebler.

The author briefly reviewed the history of the Marsh test and made comparative tests between it and the other well-known methods used for detecting the presence of arsenic, such as Reinch's, Bettendorff's, Fleitman's, Gutzeit's, etc. From a series of tests made it was found that the Marsh-Berzelius test was much the superior and reliable.

Nearly the whole realm of medicinal chemicals was examined and many of them shown to contain arsenic. The most notable was sodium phosphate, of which one sample contained $\frac{1}{86}$ of a grain of arsenic in 5 grammes of the material. Not a sample of glycerin was examined which did not contain arsenic. Honey was also examined and found practically free from arsenic, while on the other hand, tobacco appeared to contain a considerable amount.

NEW METHODS FOR THE MICROSCOPICAL EXAMINATION OF THE
COMMERCIAL STARCHES.

By Henry Kraemer.

The author illustrated the effects which various reagents have on starch-grains by means of drawings, and said that (1) On the treat-

ment of the starches with chromic acid and other reagents certain distinctive and characteristic changes in the structure of the grains are brought about. There is the development of a crystalline-like structure, a central cleft or fissure, and finally a rupture or disintegration of the grain, all of which serve to differentiate the typical potato, wheat and corn-starch grains. (2) The use of stains, as gentian-violet and safranin, shows that there are distinct areas which hold the stain, except in the case of corn starch.

In working with other stains it was observed that a solution of fuchsin was decolorized on the addition of corn starch. This was at first thought to be due to a peculiarity of this starch, but it is apparently due to the traces of alkali contained in the commercial product as a result of its purification with alkalies. The question arises in this connection as to whether corn starch is the most desirable for pharmaceutical purposes and whether it should be recognized as the official starch.

EXAMINATION OF MILK.

By Mabelle Haydock.

After pointing out the sources of contamination of milk, and giving the rules to be observed in its proper care, the author gave methods for the detection of the various impurities found in milk.

OIL OF CLOVES: A PROBLEM IN PHARMACEUTICAL REVISION.

By Edward Kremers.

At the Minnetonka meeting the author read a paper on some of the general questions involved in the revision of the text of the volatile oils of the U.S.P., but failed to elicit a discussion. The oil of cloves was made the subject of a paper in order to present some of the difficulties that confront the revisor in establishing limits for so-called constants which vary not only with differences in the crude material and the methods of keeping the finished product, but also with changes in the methods of manufacture. Thus it has been claimed, e. g., that to-day no oil of cloves, the total product of distillation, conforms with the U.S.P. requirement of specific gravity. The fluctuations in the specific gravity of this oil are shown by a table of specific gravities covering almost a century. It would seem that greater allowance should be made as far as this constant

is concerned in describing oils, even though a wider range would seem to open wide the doors for adulterations. These will have to be guarded against in other ways.

OIL OF WINTERGREEN AND ITS ADULTERANTS.

By Edward Kremers.

The author does not pretend to present anything new on this subject, but has collected the available material in connection with his work on the revision of the pharmacopœial text of the volatile oils. In addition to the gross adulterants, such as turpentine oils, etc., the question of adulteration of true oil of wintergreen from *Gaultheria procumbens* with so-called oil of wintergreen from *Betula lenta* (sweet birch oil) and with synthetic methyl salicylate is discussed. The discussion of these substitutes and their possible detection naturally suggests the question of the therapeutic and ethical justification of the substitution of sweet birch oil and synthetic methyl salicylate for true oil of wintergreen.

GLYCEROPHOSPHORIC ACID AND GLYCEROPHOSPHATES.

By Edward Kremers.

On account of the unsatisfactory character of the pharmaceutical literature concerning glycerophosphates, which have acquired some prominence as therapeutic agents in recent years, the compilation of a monograph was undertaken by E. Kremers and T. G. Windes. In order to make such a monograph more satisfactory, experimental as well as literary investigations became necessary. Whereas the latter have been practically concluded, the former have been restricted almost entirely to the rate of esterification of glycerin and orthophosphoric acid under certain sets of conditions. In a general way the results show that the percentage of esterification increases with temperature and time, but that there are constant irregularities which manifest themselves very strikingly by plotting the results as curves. Some of the series of esterification experiments are to be repeated under greatly reduced pressure. The structure of the acid and the physical and chemical properties of the salts are also to be studied further. A complete report is to be made at the next annual meeting if possible.

ORGANIZED WATER AS A FOOD.

By John Uri Lloyd.

The paper is interesting in that it is suggestive of the part that organized water plays as a food. The author asks, for instance, has the water that is used in the making of a soup, by the action of heat, simply dissolved certain salts and tissues, or has it combined with organic constituents in a way that will make a nourishing liquid or a series of water combinations, in which water exists, it is true, but with altered qualities? He further says that water is not seriously considered in the light of an integral part of food by any one, such solid substances as starch, sugar and nitrogenous and fatty tissues being usually cited as the constructive and heat-producing agents. Our works on digestion and on general physiology state that most foods are three-fourths water, and the human body, bones included, over two-thirds water, but yet consider water irrelevant as a nutrient. The upbuilding and tearing down of tissue, the production of salts and products of disintegration, both normal and abnormal, are studied solely from the basis of molecular change, in which nitrogen, hydrogen, carbon and oxygen play their respective parts as such.

The author states finally that possibly the makers of food products of the future will give less attention to analytical values concerning dead elements and more to vitalized and vitalizing structures in which available water is conspicuous. Possibly it behooves us even now to ask if a closer inquiry into the water molecule, the vitalized or easily vitalized water molecule and its many shadings, may not open up a field for the construction of more rational food products.

COMPARATIVE STABILITY OF COLORS IN WALL-PAPER.

By John M. Lindly.

The author has examined into this subject, and concludes that it is doubtful if there is any color used in wall-paper that is absolutely permanent, but that the gilt and mica, or the gold and silver, in the specimens subjected to the long-time exposures, showed no alteration. Perhaps the most permanent wall-paper would be that with a white or buff back-ground with gilt and mica decorations.

RELATIVE STRENGTH OF VARIOUS PREPARATIONS OF DIGITALIS AND
KINDRED DRUGS AS SHOWN BY EXPERIMENTS WITH FROGS.

By L. W. Faumlener and A. B. Lyons.

The authors experimented with digitalis as well as a number of other drugs that act like digitalis on the frog's heart. The authors conclude that (1) the determination of the relative strength of different samples of the same drug may be made with a precision sufficient for practical purposes by physiological experiments on animals. Duplicate determinations do not differ from one another as much as 10 per cent.—a difference which as yet we have to tolerate in chemical assays of such drugs as opium. (2) As might be expected, the relative medicinal strength of different drugs cannot be correctly inferred from the observation of a single symptom produced in an animal like the frog. Through a comparative study, however, of drugs by this manner we may hope to gain a more complete insight into the action of remedies, whose effects are usually a complex of several different influences over vital functions.

DETERMINATION OF SODIUM CARBONATE IN SODIUM SULPHATE.

By Charles E. Caspari and Miles R. Moffatt.

The authors describe a method based on that proposed by Giles and Schearer (*Jour. Soc. Chem. Ind.*, III, 197, and IV, 303) for the determination of sulphites. In accordance with the equation $\text{Na}_2\text{SO}_3 + \text{I}_2 + \text{H}_2\text{O} = \text{Na}_2\text{SO}_4 + 2 \text{HI}$, a definite amount of iodine which is used to oxidize the sulphite will give rise to the formation of a definite amount of hydriodic acid, and this amount of acid can be calculated from the amount of iodine consumed, so that the total amount of acid in the solution after titration is known, because when the excess of iodine is determined with thiosulphite no acid is formed, as the reaction takes place in accordance with the equation $2 \text{Na}_2\text{S}_2\text{O}_3 + \text{I}_2 = 2 \text{NaI} + \text{Na}_2\text{S}_4\text{O}_6$. If any carbonate had been present in the sulphite, it would have been neutralized by the hydriodic acid, which was formed in the oxidation of the sulphite, and at the end of the titration the amount of hydriodic acid present would not be equal to the amount calculated to be present from the amount of iodine used in the oxidation. Hence, the difference between the amount of hydriodic acid calculated to be present and the amount

actually found to be present is equivalent to the amount of carbonate originally present in the sulphite. The amount of hydriodic acid in the solution after titration with thiosulphate can be determined by direct titration with a tenth normal solution of sodium hydrate, using methyl-orange as an indicator, but it was found more satisfactory to add an excess of the standard solution of sodium hydrate and to determine the excess with tenth normal sulphuric acid, using the same indicator, because the end point is more easily recognized than when titrating from acid to alkali. Thus the amount of hydriodic acid present in the solution is found after the reaction of the iodine on the sulphite is complete and after the excess of iodine has been removed by thiosulphate. If this amount of hydriodic acid found be subtracted from the amount calculated to have been formed from the amount of iodine used, the difference is equivalent to the amount of sodium carbonate originally present in the sulphite. Of course, the method is equally applicable to the determination of sodium bicarbonate.

ASSAY OF MOIST OPIUM AND TINCTURES OF OPIUM.

By A. B. Stevens.

Before the lime method of assay can be applied to moist opium it is necessary that the moisture be determined; then 4 grammes of the dried sample are powdered and mixed with 2 grammes of freshly slaked lime and continuously rubbed with 10 c.c. of water; then proceed as in powdered opium.¹ The per cent. of morphine obtained multiplied by 1 minus the per cent. of moisture, and then the correction for loss of morphine is added.

Granulated opium should be powdered and rubbed with the lime and water at least fifteen minutes, or until a smooth paste is formed, and then proceed as in powdered opium.

Tinctures of Opium.—Evaporate 40 c.c. of the tincture to about 10 c.c., and rub with 2 grammes of freshly slaked lime; transfer to a graduated cylinder and add water to about 30 c.c.; then add five or ten drops of ether to destroy the foam upon the surface of the liquid; then add water to exactly 31 c.c. Agitate frequently for half an hour and filter off 15 c.c., and proceed as in powdered opium.

¹ *Pharm. Archives*, 5, p. 41.

The number of c.c. of acid consumed multiplied by 0.15037, and then 0.112 added, will give the number of grammes of morphine in 100 c.c. of the tincture.

THE ALKALOIDS OF ADLUMIA CIRRHOSA.

By J. O. Schlotterbeck and H. C. Watkins.

This is a continuation of the work commenced two years ago upon the root of the first year's plant. At that time only 100 grammes of the dry material was available and only one alkaloid, protopine, was identified. In this investigation, 20 pounds of the dry, entire plant of the second year's growth was employed. The authors state the difficulties met with in obtaining the drug and give their experience in the cultivation of the plant for the benefit of those who may at some later time wish to take up the work upon this subject.

The method of isolation of the alkaloids depends upon their liberation from combinations in the plant by means of very dilute ammonia water, drying the drug, extracting with chloroform, recovering the chloroform, extracting residue with warm, diluted acetic acid $\frac{1}{2}$ -1 per cent., concentrating, precipitating with ammonia, shaking out with ether and separating and purifying by the selection of proper solvents.

Five distinct alkaloids were isolated, including protopine which was previously reported.

- (1) Protopine, M.P. 204-205°, $C_{20}H_{19}NO_5$.
- (2) β -homochelidonine, M.P. 159°, $C_{21}H_{23}NO_5$.
- (3) Adlumine (new), M.P. 188°, $C_{39}H_{41}NO_{12}$.
- (4) Adluminine (new), M.P. 234°, $C_{30}H_{29}NO_9$.
- (5) (?) M.P. 176-177°.

These alkaloids were found to be in combination with at least two acids, viz.: citric and tartaric.

THE COLOR COMPOUND OF STYLOPHORUM DIPHYLLUM AND CHELIDONIUM MAJUS.

By J. O. Schlotterbeck.

Many years ago Probst made a chemical examination of Chelidonium majus and obtained a bitter yellow color body which he named chelidoxanthin. To this body he attributed much of the

therapeutic activity of the plant, but he made no study of this substance further than to establish a few qualitative tests.

Later, Orlow published several articles upon chelidoxanthin and simple methods for its isolation by means of picric acid as a precipitant. He obtained an indefinite, yellow body only. During the course of an investigation upon the alkaloids of *Stylophorum diphyllum*, which, by the way, might properly be called a species of chelidonium, a crystalline color compound was obtained that answered the description of Probst's chelidoxanthin. The yield from 50 pounds of dry material was quite considerable, sufficient to make various salts and numerous qualitative tests. This compound, which has never been investigated since its discovery by Probst in chelidonium, was found to be berberine.

Fresh-growing plants of both *stylophorum* and *chelidonium* were examined and found to contain berberine.

PRELIMINARY NOTE ON THE ACTION OF HYOSCYAMINE AND ATROPINE.

By Arthur R. Cushny.

Pure Hyoscyamine from *scopola* and pure atropine from *bella-donna* were prepared by Messrs. Prescott and Schlotterbeck and turned over to Dr. Cushny for pharmacological experiments. As far as completed, the research now in progress shows the following striking features: Hyoscyamine is twice as strong as atropine in checking salivary secretion and in dilating the pupil. The action on the nervous system is quite complicated and is being worked out at this time.

THE ACTIVE PRINCIPLE OF ERGOT.

By A. R. L. Dohme, Ph.D., and A. C. Crawford, M.D.

The controversy over the active principle of ergot is very old, and cannot be said at this writing to be in any more definite shape than it was years ago. The latest phase of the situation is that the Picrosclerotine of Dragendorff, the Ecboline of Tanret and the Cornutine of Kobert are more or less impure forms of what Hager is pleased to prefer to name Ergotinine $C_{70}H_{40}N_4O_{12}$, and which Keller has preferred to call Cornutine, although Hager considers these two identical. He also states that Ergotinine is very readily decomposed—

even citric acid in alcoholic solution converting it into the Cornutine of Kobert. Ten per cent. hydrochloric acid will do the same thing, and from this product, ether will only remove but little unaltered Ergotinine, while chloroform or ethyl acetate will remove remaining cornutine. Whatever alkaloid is present in ergot is there uncombined, and can be shaken out with ether. Hager says that the Spasmotine or Spacelotoxine of Jacobi is not a homogeneous body, but consists principally of Sphacelinic acid together with some alkaloid. Although Jacobi claims therapeutic activity for his Chrysotoxin $C_{21}H_{24}O_{10}$, an anthracene or phenanthrene derivative, Secalinotoxin $C_{13}H_{24}N_2O_2$, an alkaloid, and Sphacelinotoxin a resin, especially for the last named, still Hager says a corroboration is necessary before this can be accepted. The balance of the evidence, according to Hager, points to the therapeutic activity being centered in Tanret's Ergotinine, and its decomposition product, Kobert's Cornutine. Kobert's Sphacelinic acid, identical with Wigger's Ergotin, is an acid poisonous resin, and the cause of ergotism, but not of ergot's therapeutic action. Holding rather to Keller than to Tanret or to Jacobi, we have always assayed ergot by the alkaloid obtained by his process of assay, and which he saw fit to name Cornutine, and which we have always named the Cornutine of Keller, to distinguish it from Kobert's Cornutine. Whether or not it is identical with Tanret's Ergotinine, we are not prepared to prove, and we will accept Hager's claim that it is. We have for some years successfully assayed ergot and its preparations, by Keller's method of assay, and we believe we can present some facts that will pharmacologically verify our view. The method consists of the following processes:

The fluid extract is evaporated on water-bath to remove the alcohol, and the residue is rubbed up with magnesia and water. This alkaline mixture is shaken for two hours with stronger ether, and the ether drawn off and in turn shaken with weak solutions of hydrochloric acid. The acid solutions are made alkaline with ammonia and again shaken out with ether. The resulting ethereal solution is then evaporated in a tared capsule and weighed. Whether or not this yields us absolutely pure Cornutine does not especially concern us at this time, as long as we know it represents all the therapeutic activity of the drug and the alkaline mother liquors from which it was extracted do not any longer contain any

such active principles. The points to be decided in our work are: (1) are the active principle or principles obtained as the product of our assay physiologically active in the sense of constricting the arterioles? and (2) is the mother liquor of the fluid extract from which these were extracted devoid of such physiological activity?

Experiment I.—Black rooster, weight 5 pounds. Before the injection, the wattles and comb were red and warm. 5 c.c. fluid extract of best Spanish ergot were injected hypodermically at 10 A.M.

At 10.35 A.M. Comb bluish but warm, wattles still red and warm.

At 11 A.M. Comb and wattles blue and cooler.

At 11.40 A.M. Comb and wattles very blue and much cooler.

At 3.30 P.M. Comb and wattles still very blue and cool.

Rooster's bill open and rooster looking quite sick.

Conclusion: Fluid extract of ergot quite active.

Experiment II.—The Cornutine of Keller obtained from 5 c.c. of this same fluid extract was dissolved in weak acetic acid and diluted so as to correspond in amount to the original fluid extract used. Injected 5 c.c. of this liquid at 10.35 A.M. hypodermically into the same rooster.

At 11.30 A.M. Comb blue and cool all over, bill wide open, wattles bluish and cool.

At 12 M. Comb much bluer and cool, wattles blue and cool.

At 1.30 P.M. Comb deep blue and cool, wattles very blue and cool.

At 4.20 P.M. Comb and wattles still both very blue all over and very cool.

Conclusion: The effect of the Cornutine of Keller is identical with that of the fluid extract.

Experiment III.—Filtrate obtained after removing all the Cornutine by Keller's method of assay was neutralized, made up to 10 c.c. and injected hypodermically into the same rooster at 9.45 A.M.

At 10.48 A.M. Slight bluing at two tips of comb, wattles still red and both warm.

At 1.40 P.M. Comb and wattles still warm and both quite red.

Conclusion: All of the fluid extract except the Cornutine of Keller does not cause vaso-constriction, and it is hence not active physiologically.

Experiment IV.—Gray and white rooster, weight 5 pounds.

Injected hypodermically with 5 c.c. fluid extract ergot assaying 0.25 per cent. Cornutine of Keller at 9.16 A.M., wattles and comb red and warm.

At 9.37 A.M. Comb bluish and cooler, wattles beginning to blue.

At 9.56 A.M. Comb very blue and cold, wattles very cold and blue.

At 11.36 A.M. Comb very blue and cold, wattles very cold and blue.

Experiment V.—Cornutine of Keller from the fluid extract used in experiment IV injected hypodermically into same rooster at 8.30 A.M., wattles and comb red and warm.

At 9 A.M. Comb and wattles decidedly blue and cool; bill open.

At 10 A.M. Comb and wattles very blue and cold; bill open, and panting.

At 1 P.M. Comb and wattles still very blue and cold.

Experiment VI.—Filtrate from assay of experiment V neutralized and injected into the same rooster, his comb and wattles being red and warm at 9.35 A.M.

At 9.59 A.M. Comb and wattles still red and warm.

At 10.39 A.M. Comb pale bluish on one tip and warm; wattles red and warm.

At 12 M. Comb pale bluish on one tip and warm; wattles red and warm.

At 1.50 P.M. Comb and wattles still red and warm.

Experiment VII.—Black and white rooster, 4 pounds. Comb and wattles red and warm. Injected 5 c.c. fluid extract ergot at 10.53 A.M.

At 11.10 A.M. Comb and wattles still warm and red.

At 11.31 A.M. Comb bluish at tips, comb and wattles cooling.

At 11.47 A.M. Comb bluer, wattles pale and cooler.

At 12.09 P.M. Comb bluer, wattles pale, almost white and cool.

At 12.55 P.M. Comb much bluer and cold, wattles whitish and cold.

At 2 P.M. Comb very blue and cold, wattles white and cold.

At 5 P.M. Comb still blue at tips and cool, wattles pink and cool.

At 8.40 A.M. next morning. Comb and wattles red and warm.

Experiment VIII.—Black rooster, 5 pounds. Wattles and comb red and warm. At 12 M. injected 5 c.c. Cornutine of Keller obtained from fluid extract ergot in experiment VII.

At 12.27 P.M. Comb bluing, wattles red.

At 12.55 P.M. Comb very blue, wattles paler.

At 1.45 P.M. Comb dark blue and cold, wattles blue and cool.

At 4.15 P.M. Comb very blue and cold, wattles very blue and cold.

At 4.55 P.M. Comb very blue, wattles still blue.

At 8.10 A.M. next day. Tip of comb still blue, wattles pale.

At 8.20 A.M. day after. Comb and wattles still pale and cool.

Experiment IX.—Black rooster, 5 pounds. Comb and wattles red and warm; at 12.35 P.M. injected filtrate from experiment VIII, representing all of the fluid extract but the Cornutine of Keller.

At 1 P.M. Comb tips slightly blue, wattles red.

At 1.15 P.M. Comb tips still pale blue, wattles red and both warm.

At 1.55 P.M. One tip only bluish, wattles red.

At 3 P.M. Both wattles and comb red and warm.

These experiments (1) show that the fluid extracts of ergot used contained active principle or principles that cause vaso-constriction; (2) that the product of the assay for the Cornutine of Keller causes fully as much constriction of the arterioles, and is hence at least part, if not all, of the efficient part of ergot that causes vaso-constriction; (3) that what is left of the fluid extract of ergot does not contain much, if any, of those active principles of ergot which produce vaso-constriction and which are generally considered to represent the efficiency of ergot, and finally, (4) that the assay of fluid extract ergot for Keller's Cornutine is a correct means of standardizing this drug for its vaso-constriction virtues or what is generally considered to be its therapeutic efficiency.

CONTRIBUTIONS TO THE PHARMACOLOGY OF NARCOTINE.

From the Research Laboratories of Sharp & Dohme. By A. C. Crawford, M.D., and A. R. L. Dohme, Ph.D.

The opinions as to the physiological activity of narcotine have varied widely. It was considered by its discoverer, Derosne, to be the active principle of opium, whence its name, but recently Palmer has suggested the name anarcotine, from its lack of narcotic properties. The reports of the earlier experimental work vary widely, no doubt owing to imperfect methods of isolation. Von Schroeder

considers their perusal worth very little, owing to the lack of details as to the purity of the narcotine used. The historical details which follow have been taken from his work (*"Archiv f. exp. Path.,"* Vol. 17, 1883, p. 100).

The first to study the action of narcotine on animals was Orfila (*"Lehr. d. Toxikol.,"* 1853). He claimed that the character of the action depended largely upon the solvent; thus, dissolved in olive oil 0.4–0.6 gramme narcotine, first accelerated the respiration (dog) then produced a condition of stupor, which was followed by death. Slight convulsive movements of the limbs preceded death. A dose of 1.3 grammes dissolved in dilute acetic acid accelerated the respiration and caused severe convulsions, followed by stupor and death, while 2 grammes dissolved in hydrochloric or nitric acid produced no toxic symptoms.

Magendie believed it to be the excitant principle of opium, as after the administration of 0.03 gramme he experienced some excitation and headache, and dogs under its influence had convulsive movements.

Small doses, according to Bailly (*"Rev. med.,"* 1825) are inactive in man, while large ones, 3–3.5 grammes, induce merely headache and slight nausea. After a dose of 7 grammes, one of his cases merely experienced slight giddiness.

Charvet (*"Die Wirkung des Opiums,"* 1827) found that narcotine caused only slight acceleration of his pulse. He claimed the administration of 1 gramme to rabbits was followed by slight trembling and increase in reflex excitability, later by death.

Cogswell (*Lancet*, 1852) saw no action in frogs from 1 gramme, while Albers (*"Archiv f. Path. Anat.,"* Vol. 26, p. 225) claimed that the injection of 0.05–0.1 gramme as powder into frogs, caused numbing of sensation, and narcosis, and recommended its clinical use in cases of abnormal sensibility.

Bernard (*"Compt. rend.,"* Vol. 59, p. 406) denied any narcotic action.

Schroff (*"Pharmakologie,"* 1856, p. 476) noted in man that the administration of 0.1 gramme caused slight rise in pulse rate, followed by a fall, accompanied by dilatation of the pupil, deepening of the respiration and sleepiness; the action was transitory.

Baxt (*"Arch. f. Anat. u. Physiol.,"* 1869, p. 112) claimed that 0.1 gramme used subcutaneously in rabbits and guinea-pigs was

inactive, while 0.02-0.04 gramme in frogs induced a comatose condition, which was followed by convulsions.

Eulenburg ("Hypoderm. Injection d. Arzneimittel," 1875) noted an acceleration in pulse rate (man) and in respiratory frequency, with a rise in temperature. He believed that there was very slight, if any, narcotic action.

Barbier's Reports ("Traité de mat. med.") differ very much from those from the use of pure narcotine.

We undertook this study in the hope of obtaining data to form conclusions as to the advisability of denarcotizing opium—a question now under discussion by the Committee on Revision of the United States Pharmacopœia. Warm-blooded animals were especially used because of their closer relationship to man, and in all experiments involving pain, the animals were anesthetized with acetone-chloroform, urethane or ether.

We used, at first, narcotine isolated by the method described in Schmidt's "Pharmaceutische Chemie," 3d Ed., Vol. 2, p. 1894, but most of the work was done with narcotine pure, of Merck; this they declare to be "perfectly pure." Neither gave the morphine reaction with selenious acid dissolved in concentrated sulphuric acid, and the narcotine of Merck, which alone was tested, gave no blue violet color, showing the absence of papaverin (Huseman-Liebig "Annalen," Vol. 128, p. 308). Melting-point 176° C. (Vanderkleed).

GENERAL ACTION.

The administration of from 16 to 64 milligrammes by mouth to one of us (weight, 133 pounds) caused no appreciable disturbance, no drowsiness or change in temperature (before experiment, 98.5° F., after experiment, 98.4° F.) and did not produce constipation or any disturbance in pulse rate.

Daily doses of from 0.12 to 0.8 gramme have been used for migraine associated with malaria, and the only untoward symptom has been some weakening of the pulse. ("Semaine med.," 1896, No. 14, quoted by Kunkel, "Handb. d. Toxikol.," Vol. 2, p. 820.)

The usual dose for intermittent fever cases is given as from 1½ to 3 grains. (Roberts, "Lancet," Vol. 2, 1895, p. 306.) See also "Brit. and Foreign Med. Rev.," Vol. 8, 1839, p. 263).

In small dogs (16-24 pounds) the subcutaneous injection of 16

to 300 milligrammes merely induces slight drowsiness, with acceleration of the respiration, while larger doses, 0.5 gramme, produce slightly more marked dullness and disinclination to move, in one case some stiffening of the limbs and marked salivation; at times tremors and restlessness are seen; but in every case, with one exception, the dogs would come to you on being called. Unlike morphine, it induces no vomiting or purgation in dogs.

A cat (8 pounds) and a rooster (5 pounds) in our hands were apparently unaffected by 64 milligrammes hypodermically.

Rabbits were used by v. Schroeder. He found that 0.5 gramme per ounce caused, in fifteen to twenty minutes, slight trembling with some restlessness; then followed, for about one-half to one hour, a stage of increased reflex excitability, then a return to normal. The narcotic action was very slight and uncertain in appearing. After the administration of 1.2 grammes, the stage of excitement is succeeded by one of depression, in which paralytic symptoms appear, and death in about forty hours.

In frogs, the hypodermic injection of 0.05-0.07 gramme produces a somewhat similar picture; first, a stage of diminished reflex excitability, followed by one of increased reflex excitability, and later by paralysis (v. Schroeder). This paralysis is mainly central in origin, although the excitability of the motor nerves is diminished. Pigeons which are immune to morphine die with convulsions from 0.15 gramme narcotine (Liebreich, "Encyc. d. Ther.," Vol. 3, p. 204) so that in animals, any narcotic effect is very slight and often uncertain.

The injection of narcotine powder under the skin in frogs is not followed by symptoms of narcotine poisoning, as it is practically unabsorbed in this condition (V. Schroeder). Its salts are very unstable, so that it should be used in weak hydrochloric acid solution. We used for most of our work, solution made by dissolving narcotine in HCl N/20 and controlled the experiment with HCl N/40, calculating that the difference in acidity of these solutions would be neutralized by the affinity of the narcotine. On this solution, moulds grow if left long.

Numerous experiments upon cats, dogs, rabbits and frogs, as well as upon adult men (full details of which will be found in the *Proc. A.Ph.A.*, 1902) have indicated that the following conclusions are justified:

(1) That narcotine intravenously injected, causes a fall in blood pressure, which is mainly due to a direct action upon the heart itself.

(2) That the pulse rate is slowed and the cardiac nerves are unaffected.

(3) The narcotic action is slight.

(4) The respirations are increased in frequency, but the individual respirations are lessened in volume—just the opposite of heroin.

(5) The salivary secretion is at once arrested by small doses, but large doses may increase it.

(6) The amount of biliary secretion is uninfluenced.

(7) The intestinal movements are quieted.

(8) The renal secretion is diminished by its intravenous or subcutaneous use; but small doses per os are inactive.

(9) It is partially eliminated by the urine and partially by the stomach.

(10) We have no reason to believe that small doses of narcotine are injurious. Any unpleasant action the undenarcotized tincture of opium may have, is probably due to the so-called odorous principles.

(11) It does not reinforce the action of morphine.

MECHANICAL AGITATION.

By A. B. Stevens.

The apparatus is constructed on the principle of the Ferris wheel, with four arms, except that the cars are not suspended. The bottles or flasks are placed in a felt-lined trough, and in the case of bottles a second trough is placed over the bottles and held in place by a strap. When flasks are to be agitated they are placed in the trough in an upright position, and a piece of board with holes to fit the flasks is placed over the necks of the flasks and then held in position with the strap. Any amount of liquid, from a few cubic centimeters to a gallon, may be agitated at one time. The apparatus is run by a small water or electric motor.

SEPARATOR HOLDER.

By A. B. Stevens.

This consists of an ordinary retort ring, with about an inch of the front part of the ring removed by cutting it out with a hack

saw or cold chisel, thus allowing the separator to be placed directly in the support without danger of bringing the stop-cock in contact with the ring, as is apt to occur when the separator is inserted or removed from the ordinary ring.

ORGANIC QUALITATIVE ANALYSIS.

By E. H. Bartley.

The author gave a scheme for the qualitative separation of organic compounds. The principal sub-divisions are determined as follows: (a) Heat a portion of the substance on a platinum foil over the naked flame, first gently and then at a red heat, and observe its behavior, odor, etc. (b) Heat a small portion of the solid, or of the liquid, in a clean, dry test-tube or matrass, and note its behavior. (c) Heat a small portion of the solid or liquid with dilute sulphuric acid and observe any change of color, effervescence or odor. (d) Warm a small portion of the solid or of the liquid with 50 per cent. of sulphuric acid. (e) Warm (do not boil) with strong sulphuric acid. (f) Heat to nearly boiling a fragment of the substance with dilute Fehling's solution. (g) Heat a neutral solution of the substance with nearly neutral ferric chloride solution, noting color produced or precipitate formed. (h) Detection and removal of water and determination of ultimate analysis by application of special tests as for detection of hydroxyl, etc.

OTHER PAPERS.

Other papers were presented as follows: "The Alkaloids of *Eschscholtzia Californica*" and "The Alkaloids of *Dicentra Cucularia*," by R. Fischer.

SECTION ON EDUCATION AND LEGISLATION.

The Chairman of the section, E. G. Eberle, presented an unusually able and interesting address, which was devoted to a review of the progress in education and legislation in this country, and contained a number of recommendations looking to the betterment of pharmacy. An interesting feature of the Section was the report of the "Committee on Habitual Use of Narcotics" by the Chairman, H. P. Hynson, which will be published in full in this JOURNAL.

The committee was continued and a motion carried requesting Professor Beal to draft a law regulating the sale of narcotics.

A resolution regulating the free distribution of antitoxin and vaccine virus by Boards of Health was read as follows:

Whereas, We, the members of the American Pharmaceutical Association, believe that the manufacture and wholesale free distribution of antitoxin and vaccine virus by Boards of Health throughout the United States are liable to grave abuses and unjust to those who are engaged in the manufacture of these products; and

Whereas, There is, in our opinion, no more reason for such extravagant expenditure of the public funds than there is for the wholesale free distribution of food and clothing; and

Whereas, It is well known that serums and vaccines are furnished to thousands who are in no need of charitable aid; and

Whereas, The experience in St. Louis, Mo., where fourteen children lost their lives through the use of impure antitoxin manufactured in the laboratory of the St. Louis City Board of Health, directs attention to the inexpediency of intrusting the making of such preparations to Boards of Health dominated by political influences; and

Whereas, It has been found that where Boards of Health have the power to manufacture or give away vaccine virus or antitoxin the sales of the article by druggists even in favored localities have been seriously interfered with; be it

Resolved, (1) That it is the sense of the American Pharmaceutical Association that Boards of Health are acting beyond the duties especially assigned them in the manufacturing, selling or giving away, except to the destitute, any remedial agents, serums, vaccines, etc. (2) That in so doing they interfere with the discharge of their own legitimate duties, the interests of manufacturers, retailers and the drug trade generally, to the detriment of the whole community.

The resolutions were adopted, and the secretary of the Association instructed to lay the resolutions before Congress, the several State Legislatures and the municipal governments of the principal cities of the United States.

The following officers were elected for the ensuing year: Chairman, J. W. T. Knox; Secretary, Harry B. Mason; Associates, G. T. Gable, M. W. Bamford and C. A. Mayo.

The following papers were presented to this Section:

DISPENSING BY PHYSICIANS.

By C. S. N. Hallberg.

The author discussed the ethics of apothecaries prescribing and of physicians dispensing, and showed the harm that may result from the miscellaneous use of or dependence upon tablets. Physicians should use blanks ordering pharmacists not to refill prescriptions without the physician's authority, and pharmacists should observe this order. After an interesting discussion a resolution was passed discouraging the unauthorized refilling of prescriptions.

KICKING AGAINST THE PRICKS.

By H. B. Mason.

The author says that the department store represents a higher step in the evolution of commerce; it is the result of natural "selection;" it is more efficient than the small store—more capable of succeeding in the struggle for existence; and it will continue to grow and develop despite all efforts to abolish it, and absolutely regardless of the classes or the individuals whom it treads under foot in its progress onward and upward. To cry out against this fate is worse than useless. To attempt its prevention is merely to kick against the pricks, or, Don Quixote-like, to tilt one's lance against a windmill.

NOW IS THE TIME.

By Joseph P. Remington.

Eleven years ago a resolution was offered at the meeting of the American Pharmaceutical Association asking this body for its support of the proposition to require each pharmacy board to demand from each candidate for proprietor's certificate a college diploma or evidence that the candidate had passed the examination necessary for granting such diploma. The author now considers the time ripe for the appointment of a committee to draw up a strong appeal to be sent to every graduate of a college of pharmacy in the United States, asking each one to use his influence, and work actively for the passage of a law in his State, demanding that, in future, each candidate for a *proprietor's* certificate shall first produce evidence before the board that he has successfully passed his examination

before a college of pharmacy or department of pharmacy in a university, granting him a degree which will evidence a systematic training in the theory and practice of pharmacy.

ÆSOP'S ADVICE TO COLLEGES OF PHARMACY.

By R. G. Eccles.

The author recalls the fable of the Boy and the Filberts and concludes, from an examination of the catalogues of most colleges of pharmacy, that there is a tendency to do too much. He advises a careful consideration of the plan so rapidly gaining favor in our highest colleges and universities, of having students select from the many chairs those which shall be their choice, and demand a certain number of studies and a definite result.

UNIFORM PHARMACY LAWS.

By Albert E. Ebert.

The author suggests that an agreement be reached on certain fundamental features provided in pharmacy laws, and that the requirements for entrance into pharmacy deserve the first consideration. He further contends that no one should be accepted for examination by a board of pharmacy unless he can show evidence of preparation in the form of a systematic course of instruction at some recognized teaching institution.

A PLEA FOR A NATIONAL BOARD OF PHARMACY.

By W. C. Alpers.

The author states that the establishment of a National Board of Pharmacy would not interfere with State rights and contends that there should also be a National Board of Medicine and Pharmacy, to consist of prominent physicians and pharmacists from all over the country, each branch to conduct its own special examinations separately but under a general joint supervision.

A PLEA FOR HIGHER COLLEGE ENTRANCE REQUIREMENTS.

By W. M. Searby.

The author advocated a high-school education as a preliminary requirement of matriculants entering colleges of pharmacy. He

said that superior training made better students, and that the student of slender means was usually the one most benefited by securing a high character of preliminary education.

PHARMACEUTICAL TESTING AS A PART OF THE COLLEGE COURSE.

By L. E. Sayre.

In discussing the subject relating to the testing of pharmaceutical chemicals, the author referred especially to those chemical salts and preparations which are liable to adulteration, as, for example, potassium iodide, potassium bromide, syrup of the iodide of iron, sweet spirit of nitre, etc. He referred to the fact that the United States Pharmacopœia in its text gave explicit directions for testing these chemicals. The question arises how shall this material be utilized in educational work. The author contended that it should be made a special course, the preparation for which should be a training in qualitative and quantitative analysis, such as is given ordinarily in college courses.

LANTERN SLIDES.

By Otto A. Wall.

An abstract of this paper was presented by H. M. Whelpley. The paper is devoted to the consideration of the preparation as well as use of lantern slides for illustrative purposes.

USE AND ABUSE OF PROPRIETARY MEDICINES.

By M. I. Wilbert.

The author referred to the growing use and consequent abuse of proprietary medicines by American physicians, and says that in looking over the advertising pages of medical journals the medical preparations advertised in them may be classified under one or the other of the following headings:

(1) Proprietary articles, or compounds having their therapeutic uses, and the doses in which they are to be taken, prominently displayed on the label or the reading matter that accompanies the package.

(2) Proprietary articles that, in addition to the points enumerated above, are also advertised in the lay journals, and are designed particularly for popular use.

(3) Proprietary medicines that have the complete, and not a misleading, formula on the label; the manufacturer claiming no further proprietorship than the careful compounding of selected ingredients.

(4) Proprietary articles advertised and sold under false pretenses. The wording of the advertising matter that accompanies preparations of this class, is usually of such a nature that it intentionally misleads the average individual as to the true composition of the article. In addition to this, these compounds usually come under the headings of class one or two.

(5) Chemical compounds that are definitely and positively recognizable as such. A true chemical substance is one the composition of which is well known, and for which there are certain definite chemical tests, by means of which it may be recognized or tested as to its purity.

(6) Foods, and food products, including such substances as extract of beef, condensed milk, and the immense number of mixtures, composed chiefly of starch and fermentable sugars, that are offered as substitutes for, or as improvements on, mother's milk for the feeding of infants.

(7) Mineral waters. Under this heading we may group all natural as well as artificial mineral waters.

The author discusses the medicines of the different classes and says: Whether or not it is legitimate and proper for a professional man or a physician to virtually become the advertising or sales agent of the manufacturer, under the pretense of giving professional advice, for which he in turn expects remuneration, is a subject that should be given more attention in the deliberations of medical societies, with a view of enforcing existing codes of ethics.

NARCOTICS AND THE HABITUÉS.

By E. G. Eberle.

The writer concludes that laws that prevent the sale of narcotics benefit the public financially and morally. The public must aid by interesting themselves in the observance of the laws. The moral obligations are more forceful than legal penalties, except with the individual who sees nothing but the money in it, and who must be ferreted out and punished in accordance with the penalty invoked.

The doctor must desist from advertising the narcotics, whenever he uses or prescribes them. The secret use of them must be prevented as much as possible through registration of the sale. This does not mean that the information shall become public, other than to authorized legal agents; but the fact that the user knows his name frequently appears on record as a purchaser is sufficient to make him or her stop and think of the affliction, and perhaps in the moments of sound reason gather courage to battle against the use of the narcotic.

WHAT EDUCATIONAL QUALIFICATIONS SHOULD A COLLEGE OF PHARMACY DEMAND OF ITS PROSPECTIVE STUDENTS?

WHAT OF ITS GRADUATES?

By Frank E. Fisk.

The author is of the opinion that colleges of pharmacy should demand of prospective students, as a foundation for the study of pharmacy, the *equivalent* of a high-school education, which, however, need not be acquired at a high school, registration as apprentice to the drug business by a State Board of Pharmacy by examination, and an actual apprenticeship of at least one year under a competent person in a pharmacy; and that colleges of pharmacy should require of their graduates educational qualifications that best equip them for the pursuance of their chosen profession, fulfilling their own mission meanwhile by providing such changes in equipment and curricula in addition to the best efforts of the faculty, as seem to be demanded by the pharmaceutical profession in its constant evolution.

LABORATORY TEACHING OF MATERIA MEDICA.

By R. A. Hatcher.

The author states that he has obtained encouraging results by having the students test the various drugs for their chief constituents whenever practicable, expecting them to keep laboratory notes to be used in connection with the lectures.

MORAL RESPONSIBILITIES.

By Clement B. Lowe.

The author considers the use of intoxicants by employees and others, and refers to the pernicious practice of the giving of shares of stock in companies controlling proprietary articles to physicians and others who shall push their preparations.

An interesting feature of the program of this section was the letters from some of the ex-presidents of the Association:

John F. Hancock read an interesting paper on "Reminiscences," calling attention to the incidents of the inception of the Association and the character of the early work done by its members, and paid a glowing tribute to the labors of Procter and Parrish.

George W. Sloan referred to the distinguished apothecaries who organized and have since conducted the affairs of the Association.

E. L. Patch took for his theme the "Past, Present and Future," and referred to the growth of the Association and to the progress in teaching in our colleges and schools of pharmacy. In conclusion he said that the future of pharmacy will be largely influenced by what its votaries are aiming for and accomplishing to-day.

A. E. Ebert referred to the desirability of uniformity in laws regulating the practice of pharmacy in the various States of the Union, and stated that a bureau of public health might be organized as a division of the Department of the Interior, and might be given control of such affairs as pertain to the health of the people as a whole, and over which the government now exercises supervision, for example, quarantines. The establishment of such a bureau might serve as a base for further action, and as the public mind becomes educated to the importance of the subject, greater powers would be entrusted to this bureau—by constitutional amendment if necessary.

H. M. Whitney's letter was reminiscent in character, and also touched upon the matter of pharmacy legislation.

John F. Patton stated that he was of the opinion that it will be a long day before we can get any legislation of a national character in the interest of pharmacy, except it be along the line of pure foods, which would deal more with chemistry than pharmacy. We can, however, prevent legislation that would be inimical to our interests. This is work usually developed in State legislation, and would naturally be taken cognizance of by the Legislative Committees of our State Pharmaceutical Association.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Owing to the resignation of the chairman of this section elected at the last meeting of the Association, the chairman's address was dispensed with and H. P. Hynson presented an address embodying the replies from the members of the Association on questions of practical interest. The Enno Sander Prize was awarded to William F. Kaemmerer, the presentation being made by Dr. Sander. C. Lewis Diehl read the report on the National Formulary, embodying the criticisms which he had received from A. B. Stevens, H. A. B. Dunning and others.

An interesting feature of this section was the re-reading of the first paper ever read before the American Pharmaceutical Association, by its author, Alpheus P. Sharp, Baltimore. The paper was entitled "The Strengths of Commercial Muriatic and Nitric Acids and Alcohol," and was presented at the meeting held in New York in September, 1855. A special vote of thanks was tendered Mr. Sharp for his courtesy in re-reading his paper.

J. U. Lloyd exhibited the Chapman suppository mold, which was invented by Dr. Wm. B. Chapman, Cincinnati, in 1864-1865. He originally used a base consisting of cacao butter mixed with 10 per cent. of Japan wax.

H. A. B. Dunning read a paper on "Aromatic Waters as a Cause of Precipitation," and advocated the use of filter paper in the preparation of these waters, as the calcium phosphate used in their preparation causes a precipitation of Fowler's solution, lime water, etc. Purified talcum is considered better than the unpurified phosphate, whereas the filter-paper method gives a clearer and stronger solution which does not become musty.

Wilbur L. Scoville read a paper on "Colognes and Toilet Waters," and gave a number of formulas for the preparation of these together with the cost of same. He considers it a mistake to use musk in their preparation and advocates the use of a fine quality of Siam or vanilla benzoin. C. V. Emich had a historical paper on the practice of pharmacy fifty years ago. Various pieces of apparatus and pharmaceutical devices were shown, among which the following may be mentioned: Wm. C. Alpers described an exhibit of prescription and office furniture which he has in use in his store. Walter S. Reid, Baltimore, as well as W. F. Kaemmerer described their

methods of filling prescriptions. Wm. Mittelbach illustrated the manner in which he keeps the records of his laboratory work. C. T. P. Fennel, Cincinnati, had a historic exhibit of changes in prescriptions during the past fifty years. Geo. M. Beringer exhibited some "Plaster of Paris Molds" made probably in 1840. T. D. McElhenie collated some dispensary notes. F. W. Schueller exhibited a device for the preparation of spotted plasters, and W. F. Kaemmerer had several papers which were read by title, viz.: "Some Observations on Syrup of Iodide of Iron" and "Comparative Value of Purified Talcum and Calcium Phosphate as Clarifying and Distributing Agents."

The following officers were elected for the ensuing year: Chairman, George M. Beringer; Secretary, W. H. Burke, Detroit; Associate, H. A. B. Dunning, Baltimore.

SECTION ON COMMERCIAL INTERESTS.

The address of the Chairman, F. W. Meissner, Laporte, Ind., was timely in that he advocated a closer affiliation between the N. A. R. D. and A. Ph. A. He said that the formation of the National Association of Retail Druggists was caused by the determination of druggists whose commercial interests had been interfered with, to secure for themselves all the benefits obtainable from co-operation by those whose interests were alike disastrously affected. It was an indication that the American Pharmaceutical Association was not yielding (probably because of structural peculiarities or other reasons), the needed protection. It is greatly to the credit of the N. A. R. D. that since its formation that Association has carefully minded its own business, has co-operated with us wherever it could find an opportunity and has at all times becomingly acknowledged the pre-eminence of the American Pharmaceutical Association because of its honorable career of usefulness and its undoubted worth in certain fields.

A number of interesting papers were presented, among which the following may be mentioned:

Louis Schulze presented a paper on "The Commercial Value of Pharmaceutical Legislation," in which he pointed out that by compelling pharmacists to be educated men, a higher grade of manhood is introduced into the profession, and the number necessarily decreased, which brings about an increase in trade; furthermore,

men of such standing can be more readily appealed to to maintain prices, as well as made to realize the necessity of a reasonable profit in goods handled by them. Restriction of sales of abortives and powerful narcotics by pharmacists should be made from a moral rather than a commercial side; nevertheless it also has its commercial value, as it prevents their being sold by general merchants, hence restricts competition. By preventing sales of inferior and adulterated drugs, the pharmacist is benefited commercially from the fact that his competitor must handle the same quality of drugs.

H. A. B. Dunning pointed out the value of chemical analysis in the estimation of chemicals purchased by the pharmacist. Wm. F. Kaemmerer presented a paper on "The Pharmacist and His own Preparations," and said that it was a mistake for the pharmacist to put up as his own anything which is not made by himself, and that it was a still greater mistake to put up any preparation of his own simulating in shape or style of package that of some other manufacturer.

John Hargreaves, Toronto, presented "A Price Protective Plan," which he claimed was the only successful plan for controlling the prices of proprietary articles.

SPECIAL JUBILEE SESSION.

The Special Jubilee Session in commemoration of the fiftieth anniversary of the Association was held at the Philadelphia College of Pharmacy, on Thursday afternoon, September 11th. The meeting was called to order by the President of the Association, H. M. Whelpley, who made a few opening remarks in which he deplored the absence of Fr. Hoffmann, of Berlin, who had been invited to preside at this session. He then asked Charles Caspari, Jr., to read an abstract of the address prepared by Dr. Hoffmann for this occasion. Before reading the paper Professor Caspari stated that Dr. Hoffmann had requested him to deliver a special message to the Association explaining the necessity for his absence. Dr. Hoffmann had come to this country several weeks ago, but, on account of heart trouble and other complications, his physicians here had advised him to return home. He deeply regretted the necessity for his return, as he took a keen interest in the occasion. The address of Dr. Hoffmann is a lengthy one and devoted to a retrospect of the development of American pharmacy and the American Pharmaceutical Association, and is a valuable contribution to the subject.

The President of the Association then stated that there were twenty-one living ex-presidents, of whom eighteen were present, and invited these to rise and stand while their names were called. The following are those who were present:

W. J. M. Gordon, 1864, Cincinnati; E. H. Sargent, 1869, Chicago; Enno Sander, 1871, St. Louis; Albert E. Ebert, 1872, Chicago; William Saunders, 1871, Ottawa; John F. Hancock, 1873, Baltimore; C. Lewis Diehl, 1874, Louisville; George W. Sloan, 1879, Indianapolis; James T. Shinn, 1880, Philadelphia; John Uri Lloyd, 1887, Cincinnati; Joseph P. Remington, 1892, Philadelphia; Edgar L. Patch, 1893, Boston; William Simpson, 1894, Raleigh, N. C.; James M. Good, 1895, St. Louis; Henry M. Whitney, 1897, North Adams, Mass.; Charles E. Dohme, 1898, Baltimore; A. B. Prescott, 1899, Ann Arbor, Mich., and John F. Patton, 1900, York, Pa. The living ex-presidents not present were Frederick Stearns, 1866, Detroit; A. K. Finlay, 1891, New Orleans, and Joseph E. Morrison, 1896, Montreal.

The addresses of the other speakers are published in full in this JOURNAL. They were: "The Advances in Pharmaceutical Manufactures During the Past Fifty Years," by William Jay Schieffelin; "Our Centennial," by John Uri Lloyd; "The Father of American Pharmacy, William Procter, Jr.," by Albert E. Ebert; "The Status and Landmarks of American Pharmacy, and the Development of Pharmacy During Fifty Years," by Joseph L. Lemberger; "An Ode to the Founders of the American Pharmaceutical Association," by George M. Beringer.

On motion of W. Jay Schieffelin the following resolution was adopted:

"*Resolved*, That the secretary be requested to express to Dr. Frederick Hoffmann the sincere regret that the American Pharmaceutical Association feels at his absence from the fiftieth anniversary meeting, and express to him its earnest hope that his health may be speedily restored, and its hearty thanks for the valuable paper he contributed."

At the conclusion of the exercises S. A. D. Sheppard moved that the thanks of the Association be extended to the trustees and officers of the Philadelphia College of Pharmacy for the courtesies extended the organization in inviting it to meet on its fiftieth anniversary, as it had in the days of its foundation, within the walls of this College, which motion was unanimously carried.

The President of the College, Howard B. French, then invited those present to go through the various parts of the building.

FIFTIETH ANNIVERSARY BANQUET.

A banquet, in commemoration of the fiftieth anniversary of the founding of the Association, was held at Horticultural Hall, on Thursday evening, September 11th. An excellent musical program was rendered by Beale's orchestra and a mandolin sextette, and toasts were responded to as follows, Prof. Joseph P. Remington acting as toastmaster. An invocation was offered by Rev. Cassius M. Roberts, Philadelphia. Hon. Charles Emory Smith's toast to "The President of the United States," combined an eloquent tribute to the memory of President McKinley, a few words of praise for the present incumbent, and a feeling reference to ex-President Grover Cleveland. Prof. Henry M. Whelpley, speaking for "The American Pharmaceutical Association, Past, Present and Future," said that no one in this country has risen to distinction without the co-operation of the Association. He said that we have spent fifty years in laying the foundation of the work of the future, and that the responsibility of determining the qualifications of the pharmacist will soon pass from the school to the State—from the few college teachers to the entire law-making body.

Hon. Hugh Gordon Miller, of Virginia, in reply to the toast, "Our Country," paid a high tribute to the United States, and during his discourse referred especially to this city and its part in Revolutionary history.

The toast, "The Pharmacist; the Brain and Brawn of Our Organization," was responded to by Prof. Wm. C. Anderson, of Brooklyn, who said of the pharmacist that the importance of his business, the position he holds in the social and business world and his loyal citizenship entitle him to recognition as a most important factor in the welfare of the community in which he lives, the State and the nation. Quiet and unassuming though he may appear, from early morn till late at night he labors under a constant strain of both mind and body, wrestling with dispositions good, bad and indifferent; listening to the fairy tales of the traveling salesman who would relieve him of all anxiety and make him wealthy in a few months if he would only push his goods in preference to any others; hearing the sad story of the sick-room and the death

chamber; advising in one instant and cheering in another, at all times realizing that health, happiness and even life depend upon his devotion, integrity and ability; and this is what the pharmacist does for the welfare of the people.

Col. Cyrus P. Walbridge, of St. Louis, speaking of "The Wholesale Druggist, Our Friend of Substance and Good Weight," said: "Co-operation in every form of human activity is now the rule of action. Politicians may prate of the harmful effect of combination, but they may as well try to stop the tides of the sea. Shall we let the world roll on, and ignore the means of progress? Shall we not co-operate in a manner that shall elevate the common standard of our calling?"

Prof. C. S. N. Hallberg responded to the toast, "The United States Pharmacopœia; the Bond Which Joins Pharmacy and Medicine," in which he referred to the high standard of work in the Pharmacopœia, the growing recognition of its merits by both physicians and pharmacists, and paid a tribute to the part which Philadelphia has played in the history of pharmacy in the United States.

J. H. Redsecker, of Lebanon, read an interesting poem, of which, on account of limited space, we give but the first and last verses:

"Just fifty years ago there met
In this good town of Penn,
A number of most wondrous wise
And still more gifted men.
'Twas here they met and here they laid
Without much ostentation,
The broad foundation whereon's built
This great Association."

* * * * *
"As they're come here from far and near,
What thought, Sirs, can be greater
That hundreds here again will greet
Their famous Alma Mater.
Oh, mother kind, extend your arms
And open wide your portals,
Give to each one a fond embrace,
For are not some immortals?"

Brief responses were also made by the president-elect of the Association, Dr. Geo. F. Payne, and Prof. J. U. Lloyd, the latter of whom spoke of the one greater than all those mentioned by the previous speakers, viz., "The Mother."

ENTERTAINMENT FEATURES.

The entertainment provided by the local committee of arrangements under William L. Cliffe as chairman, was a feature which perhaps as much as any other distinguished this meeting from the one held fifty years ago. In a great city like Philadelphia there is much to instruct as well as entertain, and every opportunity was afforded to the members and their friends of visiting the various points of interest. On Monday evening a reception to the members and their ladies was held at Horticultural Hall. A drive on Wednesday afternoon through Fairmount Park along the banks of the Schuylkill and Wissahickon to Chestnut Hill and return by trolley, and vice versa, was especially enjoyable, a complete itinerary of the trip having been published for the use of the visitors. On Thursday evening, while the members and their guests, some 500 in number, were enjoying themselves at the Jubilee Banquet, the ladies were entertained at the Chestnut Street Theatre, where the play "The Defender" was being presented, after which luncheon was served at the Horticultural Hall.

On Friday afternoon the Philadelphia Association of Retail Druggists acted as hosts, and those in attendance were taken on a steamboat excursion along the Delaware river. Luncheon was served on board the boat and music and dancing were features of the entertainment. On Saturday afternoon there was an excursion to Atlantic City, where entertainment was furnished by the local druggists.

COLLEGE REUNIONS.

The opportunity afforded by the meeting of the American Pharmaceutical Association for the reunion of the alumni of the colleges was taken advantage of, notably by the alumni of the Philadelphia College of Pharmacy and the College of Pharmacy of the City of New York.

The resident graduates of the former tendered an informal supper to the visiting graduates, nearly 150 in all being present. The occasion was an especially interesting one, nearly all the classes since 1842 being represented. Wm. J. Jenks, of the Class of 1842, and Thomas S. Wiegand, of the Class of 1844, were among the earliest graduates represented.